

[SS 2] /ic E04C3/00 or E04C5/00 or E04C2/34

Results in EPODOC 16.572

[SS 3] Panel or Wall or module

Results in EPODOC 5.356.313

[SS 4] light or lightweight

Results in EPODOC 3.191.296

[SS 5] core and (cavities or cavity)

Results in EPODOC 71.511

[SS 6] Steel and reinforced and (cement or concrete)

Results in EPODOC 19.785

[SS 7] 2 and 3 and 4 and 5 and 6

Results in EPODOC 0

[SS 8] 2 and 3 and 5 and 6

Results in EPODOC 1

[SS 9] ..li



1/1 © EPODOC / EPO

PN - [CN2844306Y](#) Y 20061206

PR - CN20042150425U 20040826

AP - CN20042150425U 20040826

DT - I

PA - QIU ZEYOU [CN]

TI - Hollow **core** body as filler of **concrete** cast in site

AB - The utility model relates to a hollow tyre body used for filling cast in site **concrete**, which comprises a hollow tyre body (1) and a supporting foot (2), wherein the supporting foot (2) is arranged on the outer **wall** at the bottom of the hollow tyre body (1); the hollow tyre body (1) with a hollow **cavity** (4) is formed by encasing and closing the outer **wall** (3). The utility model is characterized in that retaining members (5) are arranged on the hollow tyre body (1) or / and the supporting foot (2), the retaining members (5) comprise a self tight locking hole (6) and a self tight locking stripe or a self

tight locking banding (7), and the retaining members (5) are anchored and fixed in the hollow tyre body (1) by anchor members (8) or connected with the anchor members (8) which are anchored and fixed in the hollow tyre body (1); thus, the hollow tyre body is tightly locked and fixed on a moulding board or a reinforcing **steel** bar by the retaining members, therefore the hollow tyre body is positioned and fixed conveniently, and the efficiency of the construction is enhanced at the same time. The utility model can be used in hollow slabs, building covers, room covers, **wall** bodies, foundation slabs and bridges with the cast-in-situ **concrete** or the prestressed **reinforced concrete**, and is particularly suitable for the usage of the hollow building covers without beams.

[SS 9] ..v

[EPODOC: SS 9] 2 and 5

Results in EPODOC 51

[SS 10] 9 and 4

Results in EPODOC 14

[SS 11] ..li



1/14 © EPODOC / EPO

PN - [CN107780592](#) A 20180309

PR - CN20171998043 20171019

AP - CN20171998043 20171019

DT - I

CNOI - [E04B1/61](#) ; [E04C2/34](#) ; [E04C2/46](#)

PA - HEBEI KELAIDA BUILDING MAT CO LTD

TI - High-strength **lightweight** combined wall panel

AB - The invention discloses a high-strength **lightweight** combined wall panel and belongs to the technical field of combined wall panels. The high-strength **lightweight** combined wall panel is characterized in that the combined wall panel comprises two panels which are arranged in parallel; the outer edges of the outer walls of the two panels are covered with protective rubber sleeves; an aluminum alloy keel frame is in a lock connection between the two panels; the aluminum alloy keel frame comprises a I-shaped aluminum alloy **core** board; a galvanized coating is evenly electroplated on the outer wall of the I-shaped aluminum alloy **core** board; an antioxidant lacquer coating is evenly sprayed on the outer wall of the galvanized coating; two buckle grooves are opened both on the top and bottom portion of the front wall of the aluminum alloy keel frame; buckles matched and connected with the buckle grooves are riveted on the panels; two reinforced beams are arranged in the inner **cavity** of the aluminum alloy keel frame. The high-strength **lightweight** combined wall panel has the advantages of **light** structure, simple use, easy installation, reduced manual use costs and improved installation efficiency. Furthermore, with the combination design, the wall

panels are well integrated through the combined connection mode

2/14 © EPODOC / EPO

- PN - [CN206591725U](#) U 20171027
- PR - CN20172106363U 20170203
- AP - CN20172106363U 20170203
- DT - I
- PA - HUNAN CHENGYOU GREEN ARCHITECTURAL MATERIAL TECH CO LTD
- TI - Close rib sandwiched wall panel of compound straw fiber concrete
- AB - The utility model discloses a close rib sandwiched wall panel of compound straw fiber concrete, its serve as reasons inboard panel, outside panel and a plurality of box **cavity** structure of enclosing in the rib area of moving about freely and quickly, the intussuseption of box **cavity** is filled with corresponding filling block, inboard panel adopts the fiber cement mortar, moves about freely and quickly the straw fiber concrete that rib area and outside panel adopted the different volumes of mixing, and the filling block adopts **light** insulation material. Because the utility model discloses a wallboard has adopted the structural style that the net pressed from both sides **core** plate, has reduced the dead weight of wallboard, and it moves about freely and quickly the straw fiber concrete that thermal insulation properties is good that rib area and outside panel had adopted the different volumes of mixing simultaneously, and under the prerequisite that satisfies the requirement of wallboard mechanics, the heat channel influence of moving about freely and quickly the rib area that had both reduced having utilized the source to enrich again in a large number, the rural straws renewable resources of low price. So the utility model has the characteristics of the dead weight is **light**, the wholeness is good, heat preservation is thermal -insulated, the cost low grade, guaranteeing to have reduced the cost under the prerequisite that the wholeness of wallboard, security and building energy conservation required, for the comprehensive utilization of straw provides a new way, economy and social are fairly obvious.

3/14 © EPODOC / EPO

- PN - [CN204691062U](#) U 20151007
- PR - CN20152265676U 20150429
- AP - CN20152265676U 20150429
- DT - I
- PA - LIAONING BOHAI ANTI CORROSION ENGINEERING CO LTD
- TI - C type backplate
- AB - The utility model relates to a C type backplate, C type back galvanized sheet becomes the rectangle with C type galvanized steel sheet built -up connection, and the recess size of C type galvanized steel sheet is greater than the recess size of C type back galvanized sheet, C type back galvanized sheet and the interior fixedly connected with **core** of C type galvanized steel sheet built -up connection's rectangle **cavity**, the **core** is snakelike distribution, and **core** distribution length corresponds with rectangle **cavity** area. Adopt the process of bending entirely, through **core** bonded adhesives, PVC membrane and galvanized steel sheet fixed connection one -tenth backplate, not only **light** in weight gives sound insulation, and absorbing effect and sealing performance obtain improving.

4/14 © EPODOC / EPO

- PN - [CN201671220U](#) U 20101215
- PR - CN20102117369U 20100224
- AP - CN20102117369U 20100224
- DT - I
- PA - HEILONGJIANG JINDINGSHAN BUILDING MATERIAL TECHNOLOGY DEV GROUP CO LTD
- TI - **Light** composite hollow wall plate
- AB - The utility model provides a **light** composite hollow wall plate, which is accurate in positioning and convenient in installation, and comprises a face plate, a **core** plate and positioning blocks. The face plate is respectively connected with the **core** plate and the positioning blocks, groove openings are arranged on four end surfaces of the face plate, straight-surface transition is arranged on the upper portions of the groove openings while groove openings in approximately splayed shapes are arranged on the lower portions, an upper plate and a lower plate are connected via a cross beam, and concave surfaces for adhering binders are arranged on the peripheries of an upper surface and a lower surface. The **core** plate is in a hollow **cavity** structure formed by adhering an upper **core** plate, a lower **core** plate and end plates, and a rectangular, cylindrical or ellipsoidal hollow **cavity** is arranged in the middle of the **core** plate and formed by shaping once. The positioning blocks are mounted on the groove openings of the wall plate, the shape of the section of each positioning block is coincided with that of the section of each groove opening, and the portion, projecting out of each groove opening, of each positioning block is cuboid. The wall plate does not generate cracks due to changes of temperature and humidity, is accurate in positioning during construction and convenient in installation, can guarantee sufficient mortar filling by adopting the mode of pouring mortar, and is high in construction efficiency and low in labor intensity.

5/14 © EPODOC / EPO

- PN - [WO2010129983](#) A2 20101118
- PNFP - WO2010129983 A3 20120315
- PR - AT20090000753 20090514
- AP - WO2010AT00165 20100514
- DT - **
- CT - |EP| ISR (A3)
[WO2005010293](#) A1 20050203 [Y] (XIAMEN NEW TECHNOLOGY INTEGRAT [CN])
[Y] 1-13
* abstract *;
[US2010112265](#) A1 20100506 [AP] (LENG LUHAO [CN])
[AP] 1-13
* paragraphs [0001] , [0048]; figure 1 *;
[AT503236](#) A2 20070815 [YD] (BERGER JOHANN [AT])
[YD] 1-13
* page 8; figure 2 *;
[WO2007048149](#) A1 20070503 [Y] (BERGER JOHANN [AT])
[Y] 1-13

* page 8, paragraph 2 - page 10, paragraph 1; figure 2 *;

[CH159886](#) A 19330215 [A] (XYLOTIN A G THUSIS [CH])

[A] 1-13

* page 1; figure 1 *;

[AU1011566](#) A 19690227 [A] (URS PETER GAUCHAT, DARRYL IVAN COOMBS)

[A] 1-13

* figures 1-4 *;

[DE202004012141U](#) U1 20041021 [A] (KETTLER BIRGIT [DE])

[A] 1-13

* figures 1-3 *

CCI - [B32B3/08](#) ; [B32B3/12](#) ; [E04C2/365](#) ; [E04C2/386](#)

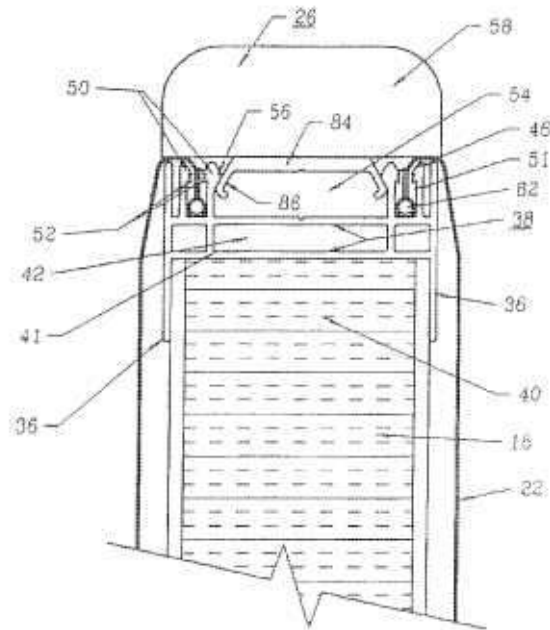
PA - (A2 A3)
BERGER JOHANN [AT]

TI - (A2 A3)
LIGHTWEIGHT STRUCTURAL AND FURNITURE PANEL

AB - (A2 A3)
The invention relates to a novel structural and furniture panel consisting of a honeycomb-based **lightweight** composite material, said panel being formed by a **core** panel (2) consisting of a conventional honeycomb material with honeycombs (20) that are arranged perpendicularly to the principal surface (KHF) of the **core** panel, and cover layers (201) on the upper and lower faces. A reinforcement strip (3) is bonded to at least one of the side edge flanks (202) of the cover layers, said strip consisting of a **lightweight** diagonal-fibre wooden material (HLM) with diagonal **cavities**. The material has a grain (hf) running diagonally to the principal surfaces (PHF) of the panel at a positive and/or negative acute angle (a) of between +25 and -80° and/or between -25 and -80° and a plurality of diagonal **cavities** (31) that run parallel to the grain direction (hf), are separated by struts (32) and preferably have a rectangular cross-section. A common cover layer (4) is bonded to the respective principal surfaces (KHF and VHF) of the **core** panel (2) and the reinforcement strip (3) with the diagonal **cavities** that are open on both sides (31).

PN - [US5737893](#) A 19980414
 PR - CA19952161459 19951026
 AP - US19960735642 19961023
 DT - **
 CT - || STSE (A)
 [US3480313](#) A 19691125 [] (JOHN J HALKO JR, et al)
 [US3768222](#) A 19731030 [] (MONT BIRUM H)
 [US4104838](#) A 19780808 [] (GF BUSINESS EQUIP)
 [US4147198](#) A 19790403 [] (EXTRAVERSION INC)
 [US4690192](#) A 19870901 [] (STILLING JOHANN)
 [US4761922](#) A 19880809 [] (BLACK BRIAN E [NZ])
 [US4891922](#) A 19900109 [] (HAWORTH INC [US])
 [US5054255](#) A 19911008 [] (HERBERT MANINFIOR DESIGN ENGIN [US])
 [US5067543](#) A 19911126 [] (BOVE THOMAS A [US])
 [US5070666](#) A 19911210 [] (MILLER HERMAN INC [US])
 [US5125193](#) A 19920630 [] (SKYLINE DISPLAYS INC [US])
 [US5274975](#) A 19940104 [] (HAAG E KEITH [US])
 [US5394658](#) A 19950307 [] (SCHREINER CHARLES P [US], et al)
 [CA1058372](#) A 19790717 [] (HARTER CORP)
 [CA2017666](#) A1 19901209 [] (HARTER CORP [US])
 [CA2090386](#) A1 19940826 [] (VONDRESS FRANK [CA], et al)
 [DE2027194](#) A1 19711216 []
 [GB2161193](#) A 19860108 [] (ASPEC LIMITED)

 CCI - [E04B2/7425](#)
 CCA - [E04B2002/742](#) ; [E04B2002/7479](#)
 PA - TETRAD MARKETING SALES LTD [CA]
 TI - Panel construction and



connection system

AB

- A **light** weight, upholstered panel for use in modular and free standing office landscaping systems. The panels form free standing partitions which can be rearranged and assembled into an office system. Panels can be interconnected and positioned over a range of angles relative to adjacent panels. The panel **core** is composed of a **light** weight composite structural material with perimeter frame members along each edge. Each frame member has the same cross-section along its length. The horizontal perimeter horizontal frame members are interconnected with the vertical frame members by corner connectors. The corner connectors have protrusions which engage hollow **cavities** in the ends of the frame members. The perimeter frame acts to transfer loads imposed on the panel to the structural **core**. The perimeter frame members incorporate formations to secure the panel fabric, trim and the inter-panel connection system in place and provide recesses for fasteners and support hardware.

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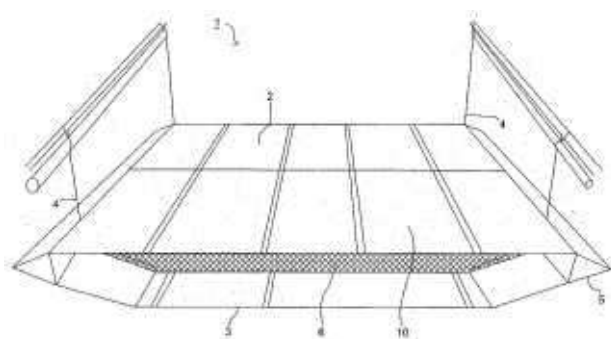
PN - [US2005199166](#) A1 20050915

PR - GB20020012392
20020529; WO2003GB02229
20030522

AP - US20040515396 20041209

DT - **

CT - || R141 (A1)
[US3783082](#) A 19740101 [
] (ALMOGE);
[US3864201](#) A 19750204 [
] (SUSUKI RINNOSUKE, et al);
[US5508085](#) A 19960416 [
]



] (LOCKSHAW JAMES J [US], et al);
[US6208](#) B1 00000000 [];
[US5747142](#) B1 00000000 [];
[US5778813](#) B1 00000000 [];
[US3696452](#) A 19721010 [] (ZIEGLER EARLE)

- CCI - [B32B3/08](#)
- CUI - [B32B5/18](#) ; [B32B15/046](#) ;
[B32B15/08](#) ; [B32B15/18](#)
- CUA - [B32B2250/40](#)
- PA - INTELLIGENT ENGINEERING LTD BS
[EP]
- TI - Structural sandwich plate
members
- AB - A structural sandwich plate
member comprises first and
second outer plates and a **core**
material of plastics or polymer
material. A plurality
of **lightweight** forms are
disposed between the outer
plates so that the **core** material
forms ribs extending in two
substantially orthogonal
directions. The **lightweight** forms
may be hollow or solid and
manufactured out of foam,
plastics or expanded
polystyrene. The structural
sandwich plate member is
preferably formed by injecting
the plastics or polymer **core**
material into a closed **cavity**
formed between the outer plates
and in which the **lightweight**
forms have been preplaced.

PN - [US4923544](#) A 19900508

PR - US19890408698
19890918; US19880266386
19881102

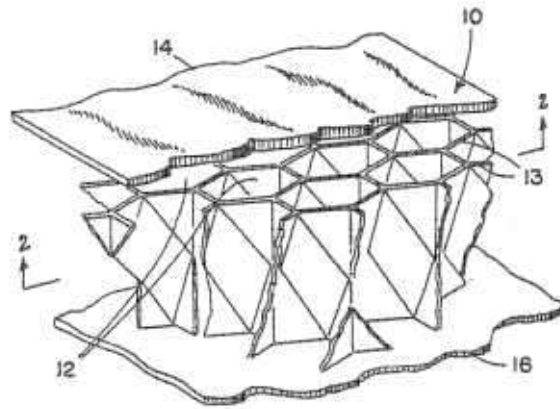
AP - US19890408698 19890918

DT - *; Rep

CT - || STSE (A)
[US2481046](#) A 19490906 [
] (SCURLOCK JAMES C);
[US2682235](#) A 19540629 [
] (BUCKMINSTER FULLER
RICHARD);
[US3058550](#) A 19621016 [
] (RICHTER DONALD L);
[US3209507](#) A 19651005 [
] (ROBERT DRESSER JAMES, et al);
[US3254459](#) A 19660607 [
] (BODLEY ROBERT W);
[US3354591](#) A 19671128 [
] (BUCKMINSTER FULLER
RICHARD);
[US3415027](#) A 19681210 [
] (SNYDER MARVIN K, et al);
[US3642566](#) A 19720215 [
] (FIGGE IRVING E);
[US3645833](#) A 19720229 [
] (FIGGE IRVING E);
[US3849237](#) A 19741119 [
] (ZETLIN L);
[US3906571](#) A 19750923 [
] (ZETLIN LEV);
[US3914486](#) A 19751021 [
] (BORGFORD SKAPTI JOSEF)

CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [E04B1/19](#) ;
[E04C2/326](#) ; [E04C2/34](#) ;
[E04C2/3405](#) ; [E04C2/365](#)

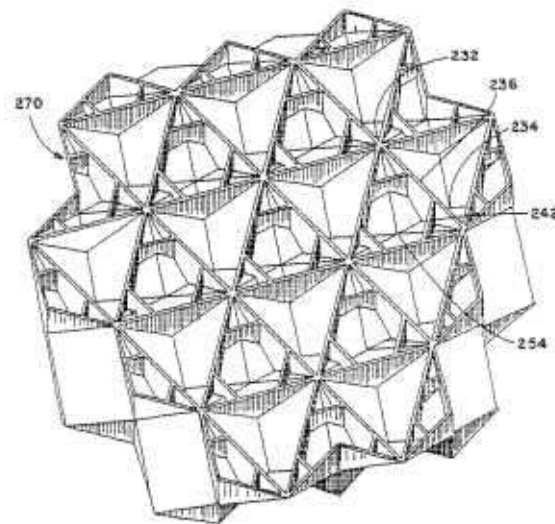
CCA - [E04B2001/1927](#) ;
[E04B2001/1978](#) ;
[E04B2001/1981](#) ;
[E04B2001/1987](#) ;
[E04B2001/199](#) ;
[E04B2001/1993](#) ;
[E04C2002/3494](#) ; [Y10S52/10](#) ;
[Y10T29/49906](#) ; [Y10T29/49988](#) ;
[Y10T156/1002](#) ;
[Y10T428/24149](#) ;
[Y10T428/24661](#)



PA - TETRAHEX INC [US]
 TI - Method of manufacturing a tetrahexaconal truss structure
 AB - A **lightweight**, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities**. Each solid-walled **cavity** has a hexagonal base so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base. The walls of the **cavities** may be solid or they may be defined by a series of support struts for an even lighter weight structure. The upper and lower surfaces may be covered by skins, making it suitable for boat hulls, vacuum chambers, and aircraft.

9/14 © EPODOC / EPO

PN - [US4967533](#) A 19901106
 PR - US19890402451
 19890901; US19880266386
 19881102
 AP - US19890402451 19890901
 DT - *; Rep
 CT - || STSE (A)
[US3642566](#) A 19720215 [
] (FIGGE IRVING E);
[US3665882](#) A 19720530 [
] (TANCHO D GEORGIEV, et al);
[US3842768](#) A 19741022 [
] (MAISTRE M);
[US3974600](#) A 19760817 [
] (SYNESTRUCTICS INC);
[US4241117](#) A 19801223 [] (US
 ARMY)
 CTNP - [] Space Grid Structures, John
 Borrego, pp. 60, 70, 71, 1968
 CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [E04B1/19](#) ;

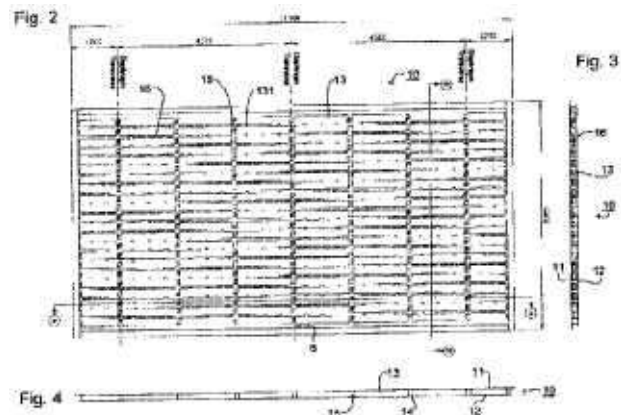


	E04C2/326 ; E04C2/34 ; E04C2/3405 ; E04C2/365
CCA	- E04B2001/1927 ; E04B2001/1978 ; E04B2001/1981 ; E04B2001/1987 ; E04B2001/199 ; E04B2001/1993 ; E04C2002/3494 ; Y10S52/10 ; Y10T428/24678
PA	- TETRAHEX INC [US]
TI	- Tetrahexagonal truss structure
AB	- A lightweight , high strength moldable structure is comprised of a core having a plurality of interconnected cavities . Each solid-walled cavity has a hexagonal base so that the core of the structure has upper and lower surfaces. Each solid-walled cavity has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base. The walls of the cavities may be solid or they may be defined by a series of support struts for an even lighter weight structure. The upper and lower surfaces may be covered by skins, making it suitable for boat hulls, vacuum chambers, and aircraft. The hexagonal bases of the solid walled cavities may be replaced by perpendicular support walls extending between the adjacent tetrahedral apices and/or hexagonal base vertices.
10/14	© EPODOC / EPO
PN	- JPH04371638 A 19921224
PNFP	- JP2505323B B2 19960605
PR	- JP19910148455 19910620
AP	- JP19910148455 19910620
DT	- I
FI	- B32B19/00; B32B3/30; E04C2/04&E; E04C2/34&Q; E04C2/52&A

- FT - 2E162/CA00; 2E162/CA31; 2E162/CA35; 2E162/FA00; 2E162/FA03; 2E162/FA05;
2E162/FA09; 4F100/AA00B; 4F100/AA00D; 4F100/AA00H; 4F100/AA08H; 4F100/AA19H;
4F100/AC00A; 4F100/AC00B; 4F100/AC00C; 4F100/AC00D; 4F100/AC02H; 4F100/AC10;
4F100/AC10H; 4F100/AG00; 4F100/BA04; 4F100/BA06; 4F100/BA10B; 4F100/BA10D;
4F100/BA12; 4F100/BA13; 4F100/BA32; 4F100/CA23B; 4F100/CA23D; 4F100/CA24;
4F100/CB00; 4F100/DA20; 4F100/DD05A; 4F100/DD05C; 4F100/DE04H; 4F100/DG01A;
4F100/DG01B; 4F100/DG01C; 4F100/DG01D; 4F100/DG06A; 4F100/DG06B;
4F100/DG06C; 4F100/DG06D; 4F100/EA02; 4F100/EA03; 4F100/EB041; 4F100/EC182;
4F100/ED751; 4F100/ED951; 4F100/EE02; 4F100/EG001; 4F100/EH411; 4F100/EJ311;
4F100/EJ861; 4F100/EK06; 4F100/GA04; 4F100/GB08; 4F100/JA14B; 4F100/JA14D;
4F100/JD15A; 4F100/JD15B; 4F100/JD15C; 4F100/JD15D; 4F100/JJ07; 4F100/JK05;
4F100/JK10; 4F100/JK11; 4F100/JK12; 4F100/JL01; 4F100/JL02; 4F100/JL03;
4F100/JL03H; 4F100/JL05; 4F100/JL16
- PA - (A)
DAIKEN TRADE & INDUSTRY
- TI - (A)
MANUFACTURE OF **CORE** MATERIAL FOR PANEL
- AB - (A)
PURPOSE: To easily manufacture a **core** material for panel which is hard and dense in the surface and **light** and excellent in the shock-absorbing ability and further provided with a plurality of **cavities**. CONSTITUTION: A wet mat having mineral fibers as a chief element and constituting a dense surface layer 2 having inorganic filler is laminated to unify with a wet mat having mineral fiber as a chief component and constituting an intermediate layer 1. After a plurality of recessed grooves 3 are juxtaposed at the rear face of the wet mat of the intermediate layer 1 and dried, the first mineral fiber plate 4 is obtained. The rear face of the second mineral fiber plate having the high density surface obtained in the same way is laminated with the rear face of the first mineral fiber plate 4 to unify together to form a **cavity** groove 6 at the recessed grooves 3. In this way, a **core** material for panel can be obtained, on which the front and rear faces of intermediate layers 1, **light** and excellent in shock-absorbing ability, are covered with hard and dense surface layers 2.

11/14 © EPODOC / EPO

- PN - [GB2389072](#) A 20031203
- PNFP - [GB2389072](#) B 20050406
- PR - [GB20020012392](#) 20020529
- AP - [GB20020012392](#) 20020529
- DT - *; Rep
- CT - || STSE (A B)
[GB2374038](#) A 20021009 [
] (INTELLIGENT ENGINEERING
[BS]);
[US3783082](#) A 19740101 [
] (ALMOG E);
[US5747142](#) A 19980505 [
] (BLEASDALE DESMOND HAROLD
[AU])



CCI	- B2B3/08
CUI	- B32B5/18 ; B32B15/046 ; B32B15/08 ; B32B15/18
CUA	- B32B2250/40
PA	- (A B) INTELLIGENT ENGINEERING [BS]
TI	- (A) Structural sandwich plate members - (B) Improved structural sandwich plate members
AB	- (A) A structural sandwich plate member comprises first and second outer plates (11, 12) and a core material (14) of plastics or polymer material. A plurality of lightweight forms (13) are disposed between the outer plates so that the core material forms ribs (15, 16) extending in two substantially orthogonal directions. The lightweight forms may be hollow or solid and manufactured out of foam, plastics or expanded polystyrene. The structural sandwich plate member is preferably formed by injecting the plastics or polymer core material into a closed cavity formed between the outer plates and in which the lightweight forms have been preplaced.

PN - [EP0415597](#) A1 19910306

PR - US19890402451 19890901

AP - EP19900308917 19900814

DT - **

CT - || STSE (A1)
[EP0367371](#) A1 19900509
 [XP] (TETRAHEX INC [US]);
[GB601957](#) A 19480518
 [A] (LESLIE STURMER JACOBSON);
[US3914486](#) A 19751021
 [AD] (BORGFORD SKAPTI JOSEF);
[US3417959](#) A 19681224
 [A] (SCHULTZ THOMAS E)

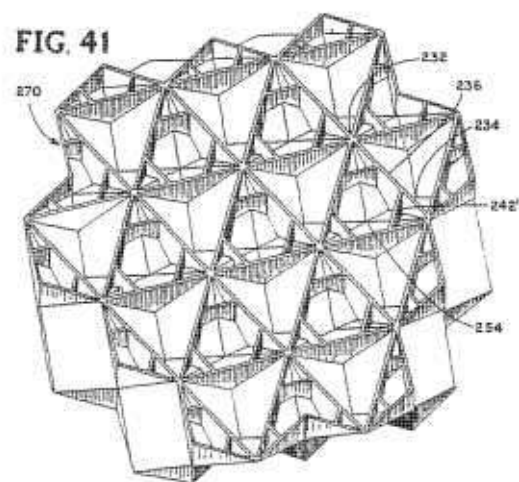
CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [E04B1/19](#) ;
[E04C2/326](#) ; [E04C2/34](#) ;
[E04C2/3405](#) ; [E04C2/365](#)

CCA - [E04B2001/1927](#) ;
[E04B2001/1978](#) ;
[E04B2001/1981](#) ;
[E04B2001/1987](#) ;
[E04B2001/199](#) ;
[E04B2001/1993](#) ;
[E04C2002/3494](#) ; [Y10S52/10](#) ;
[Y10T428/24678](#)

PA - TETRAHEX INC [US]

TI - Texrahexagonal truss structure and method.

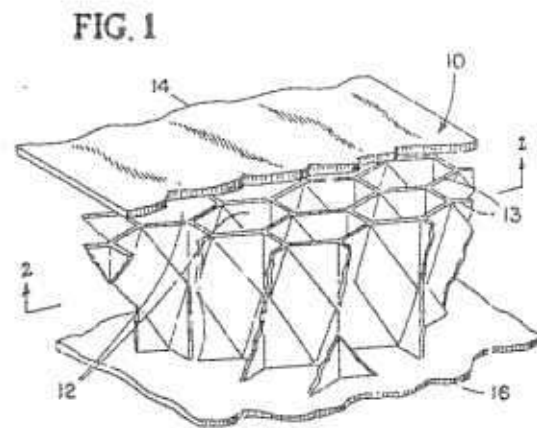
AB - A **lightweight**, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities** (12). Each solid-walled **cavity** (12) has a hexagonal base (24) so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** (12) has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base (24). The walls of the **cavities** may be solid or they may be defined by a series of support struts (63, 64) for an even lighter weight structure. The upper and lower surfaces may be covered by



skins (14, 16), making it suitable for boat hulls, vacuum chambers, and aircraft. The hexagonal bases of the solid walled **cavities** (12) may be replaced by perpendicular support walls (236, 242, 252) extending between the adjacent tetrahedral apices (232, 234) and/or hexagonal base vertices (254).

13/14 © EPODOC / EPO

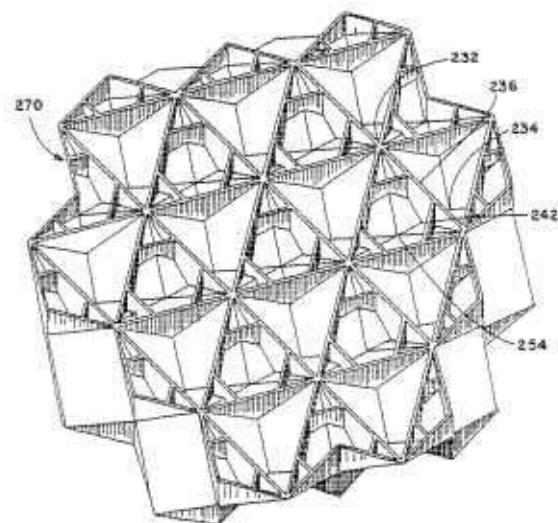
- PN - [EP0367371](#) A1 19900509
- PNFP - EP0367371 B1 19911009
- PR - US19880266386 19881102
- AP - EP19890304748 19890510
- DT - *; Rep
- CT - || STSE (A1)
[GB601957](#) A 19480518
 [A] (LESLIE STURMER JACOBSON);
[US3642566](#) A 19720215
 [AD] (FIGGE IRVING E);
[WO8101807](#) A1 19810709
 [A] (HARDIGG IND INC [US], et al);
[US4381636](#) A 19830503
 [A] (SAPP DENNIS H);
[US3417959](#) A 19681224
 [A] (SCHULTZ THOMAS E)
- CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [E04B1/19](#) ;
[E04C2/326](#) ; [E04C2/34](#) ;
[E04C2/3405](#) ; [E04C2/365](#)
- CCA - [E04B2001/1927](#) ;
[E04B2001/1978](#) ;
[E04B2001/1981](#) ;
[E04B2001/1987](#) ;
[E04B2001/199](#) ;
[E04B2001/1993](#) ;
[E04C2002/3494](#) ;
[Y10T428/24149](#) ;
[Y10T428/24165](#)
- PA - (A1)
 TETRAHEX INC [US]
- TI - (A1)
 Tetrahexagonal truss structure.



- (B1)
TETRAHEXAGONAL TRUSS
STRUCTURE
- AB - (A1)
A **lightweight**, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities** (12). Each solid-walled **cavity** (12) has a hexagonal base (24) so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** (12) has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base. The walls (13) of the **cavities** may be solid or they may be defined by a series of support struts (63, 64) for an even lighter weight structure. The upper and lower surfaces may be covered by skins (14, 16) making it suitable for boat hulls, vacuum chambers, and aircraft.

14/14 © EPODOC / EPO

- PN - [CA2023572](#) A1 19910302
- PR - US19890402451 19890901
- AP - CA19902023572 19900817
- DT - I
- CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [E04B1/19](#) ;
[E04C2/326](#) ; [E04C2/34](#) ;
[E04C2/3405](#) ; [E04C2/365](#)
- CCA - [E04B2001/1927](#) ;
[E04B2001/1978](#) ;
[E04B2001/1981](#) ;
[E04B2001/1987](#) ;
[E04B2001/199](#) ;
[E04B2001/1993](#) ;
[E04C2002/3494](#) ; [Y10S52/10](#) ;
[Y10T428/24678](#)
- PA - TETRAHEX INC [US]
- TI - TETRAHEXAGONAL TRUSS
STRUCTURE AND METHOD



AB - TETRAHEXAGONAL TRUSS
STRUCTURE AND METHOD
A **lightweight**, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities** (12). Each solid-walled **cavity** (12) has a hexagonal base (24) so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** (12) has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base (24). The walls of the **cavities** may be solid or they may be defined by a series of support struts (63, 64) for an even lighter weight structure. The upper and lower surfaces may be covered by skins (14, 16), making it suitable for boat hulls, vacuum chambers, and aircraft. The hexagonal bases of the solid walled **cavities** (12) may be replaced by perpendicular support walls (236, 242, 252) extending between the adjacent tetrahedral apices (232, 234) and/or hexagonal base vertices (254).

[SS 11] ..v

[EPODOC: SS 11] 2 and 5 and 6

Results in EPODOC 1

[SS 12] ..li



1/1 © EPODOC / EPO

PN - [CN2844306Y](#) Y 20061206

PR - CN20042150425U 20040826

AP - CN20042150425U 20040826

DT - I

- PA - QIU ZEYOU [CN]
- TI - Hollow **core** body as filler of **concrete** cast in site
- AB - The utility model relates to a hollow tyre body used for filling cast in site **concrete**, which comprises a hollow tyre body (1) and a supporting foot (2), wherein the supporting foot (2) is arranged on the outer wall at the bottom of the hollow tyre body (1); the hollow tyre body (1) with a hollow **cavity** (4) is formed by encasing and closing the outer wall (3). The utility model is characterized in that retaining members (5) are arranged on the hollow tyre body (1) or / and the supporting foot (2), the retaining members (5) comprise a self tight locking hole (6) and a self tight locking stripe or a self tight locking banding (7), and the retaining members (5) are anchored and fixed in the hollow tyre body (1) by anchor members (8) or connected with the anchor members (8) which are anchored and fixed in the hollow tyre body (1); thus, the hollow tyre body is tightly locked and fixed on a moulding board or a reinforcing **steel** bar by the retaining members, therefore the hollow tyre body is positioned and fixed conveniently, and the efficiency of the construction is enhanced at the same time. The utility model can be used in hollow slabs, building covers, room covers, wall bodies, foundation slabs and bridges with the cast-in-situ **concrete** or the prestressed **reinforced concrete**, and is particularly suitable for the usage of the hollow building covers without beams.

[SS 12] ..v

[EPODOC: SS 12] 9

Results in EPODOC 51

[SS 13] ..li



- 1/51 © EPODOC / EPO
- PN - [CN107780592](#) A 20180309
- PR - CN20171998043 20171019
- AP - CN20171998043 20171019
- DT - I
- CNOI - [E04B1/61](#) ; [E04C2/34](#) ; [E04C2/46](#)
- PA - HEBEI KELAIDA BUILDING MAT CO LTD
- TI - High-strength lightweight combined wall panel
- AB - The invention discloses a high-strength lightweight combined wall panel and belongs to the technical field of combined wall panels. The high-strength lightweight combined wall panel is characterized in that the combined wall panel comprises two panels which are arranged in parallel; the outer edges of the outer walls of the two panels are covered with protective rubber sleeves; an aluminum alloy keel frame is in a lock connection between the two panels; the aluminum alloy keel frame comprises a I-shaped aluminum alloy **core** board; a galvanized coating is evenly electroplated on the outer wall of the I-shaped aluminum alloy **core** board; an antioxidant lacquer coating is evenly sprayed on the outer wall of the galvanized coating; two buckle grooves are opened both on the top and bottom portion of the front wall of the aluminum alloy keel

frame; buckles matched and connected with the buckle grooves are riveted on the panels; two reinforced beams are arranged in the inner **cavity** of the aluminum alloy keel frame. The high-strength lightweight combined wall panel has the advantages of light structure, simple use, easy installation, reduced manual use costs and improved installation efficiency. Furthermore, with the combination design, the wall panels are well integrated through the combined connection mode.

2/51 © EPODOC / EPO

- PN - [CN206591725U](#) U 20171027
- PR - CN20172106363U 20170203
- AP - CN20172106363U 20170203
- DT - I
- PA - HUNAN CHENGYOU GREEN ARCHITECTURAL MATERIAL TECH CO LTD
- TI - Close rib sandwiched wall panel of compound straw fiber concrete
- AB - The utility model discloses a close rib sandwiched wall panel of compound straw fiber concrete, its serve as reasons inboard panel, outside panel and a plurality of box **cavity** structure of enclosing in the rib area of moving about freely and quickly, the intussuseption of box **cavity** is filled with corresponding filling block, inboard panel adopts the fiber cement mortar, moves about freely and quickly the straw fiber concrete that rib area and outside panel adopted the different volumes of mixing, and the filling block adopts light insulation material. Because the utility model discloses a wallboard has adopted the structural style that the net pressed from both sides **core** plate, has reduced the dead weight of wallboard, and it moves about freely and quickly the straw fiber concrete that thermal insulation properties is good that rib area and outside panel had adopted the different volumes of mixing simultaneously, and under the prerequisite that satisfies the requirement of wallboard mechanics, the heat channel influence of moving about freely and quickly the rib area that had both reduced having utilized the source to enrich again in a large number, the rural straws renewable resources of low price. So the utility model has the characteristics of the dead weight is light, the wholeness is good, heat preservation is thermal -insulated, the cost low grade, guaranteeing to have reduced the cost under the prerequisite that the wholeness of wallboard, security and building energy conservation required, for the comprehensive utilization of straw provides a new way, economy and social are fairly obvious.

3/51 © EPODOC / EPO

- PN - [WO2016119741](#) A1 20160804
- PR - CN2015149080 20150130
- AP - WO2016CN72726 20160129
- DT - *; Rep
- CT - [CN] ISR (A1)
[CN104674963](#) A 20150603
 [PX] (ZHI YANGBO, et al)
 [PX] 1-4
 * , description, paragraphs [0016]-[0026], claims 1-4, and figures 1-4 *;

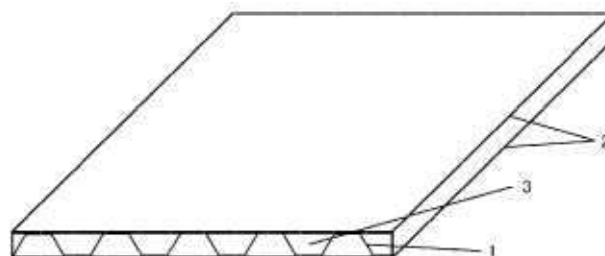


图 1

[CN204418407U](#) U 20150624
 [PX] (ZHI YANGBO, et al)
 [PX] 1-4
 * , description, paragraphs
 [0016]-[0026], claims 1-4, and
 figures 1-4 *;
[CN2682131Y](#) Y 20050302
 [XY] (LIN JIANWEI [CN])
 [X] 1-3
 * , description, page 3, line 15 to
 page 4, line 13, and figures 1-3,
 description, page 3, line 15 to
 page 4, line 13, and figures 1-3 *
 [Y] 4;
[CN102261157](#) A 20111130
 [Y] (ZHANGJIAGANGYULONG
 TECHNOLOGICAL BOARD CO., LTD.)
 [Y] 4
 * , description, paragraphs
 [0016]-[0018], and figure 2 *;
[CN101408048](#) A 20090415
 [A] (XIAOPING XU [CN])
 [A] 1-4
 * , the whole document *;
[CN1371445](#) A 20020925
 [A] (DONATI GROUP S P A [IT])
 [A] 1-4
 * , the whole document *;
[DE2754818](#) A1 19790613
 [A] (HOLLER OTTO)
 [A] 1-4
 * , the whole document *;
[DE19954955](#) A1 20000615
 [A] (SCOBALIT AG WINTERTHUR
 [CH])
 [A] 1-4
 * , the whole document *

- | | |
|-----|--|
| CUI | - E04B1/80 ; E04C2/34 |
| PA | - ZHI YANGBO [CN]; DONG CHUANYI [CN] |
| TI | - AIR HEAT-INSULATION PANEL |
| AB | - An air heat-insulation panel comprises a core plate (1) and face plates (2) compounded on the surfaces thereof. The core plate (1) is made of inorganic viscose corrugated plate. The face plates (2) are respectively |

compounded on the upper surface and the lower surface of the **core** plate (1), then a plurality of air heat-insulation **cavities** (3) are formed in the **core** plate (1) and/or between the **core** plate (1) and the face plates (2). Sealing portions are arranged at two ends of each air heat-insulation **cavity** (3) to form a sealed air heat-insulation **cavity**. The air heat-insulation panel has high strength, a long service lifetime, and has a good heat-insulating property, flame retardant performance and aging resistance.

4/51 © EPODOC / EPO

- PN - [CN205382625U](#) U 20160713
- PR - CN2016289348U 20160128
- AP - CN2016289348U 20160128
- DT - I
- PA - XINYANG COLLEGE AGRICULTURE & FORESTRY
- TI - Syllable -dividing wallboard for building
- AB - The utility model discloses a syllable -dividing wallboard for building, including the **core**, the inside splint that are equipped with of **core**, at the inside inner panel that is equipped with of splint, interior intralamellar part is equipped with the board **core**, the **core**, splint and inner panel all are empty **core** plate, splint hang inside the **cavity** of **core** through vertical spring, the inner panel hangs inside the **cavity** of splint through transverse spring, the intermediate position of intralamellar part including board **core** level sets up, both sides are equipped with the 2nd a foaming cement board and a foaming cement board respectively about the **core**, a foaming cement board and the 2nd foaming cement intralamellar part all are equipped with the **cavity**, the surface of two relative upper and lower faces of **cavity** all is the wave, the position of the crest of one of them is just right with the position of another trough, the utility model discloses thermal insulation performance is gone with by the syllable -dividing wallboard for building fire resistance, and the security performance is high, and long service life has better syllable -dividing noise resistance ability, and the practicality is strong.

5/51 © EPODOC / EPO

PN - [US2016053506](#) A1 20160225

PNFP - US9546496 B2 20170117

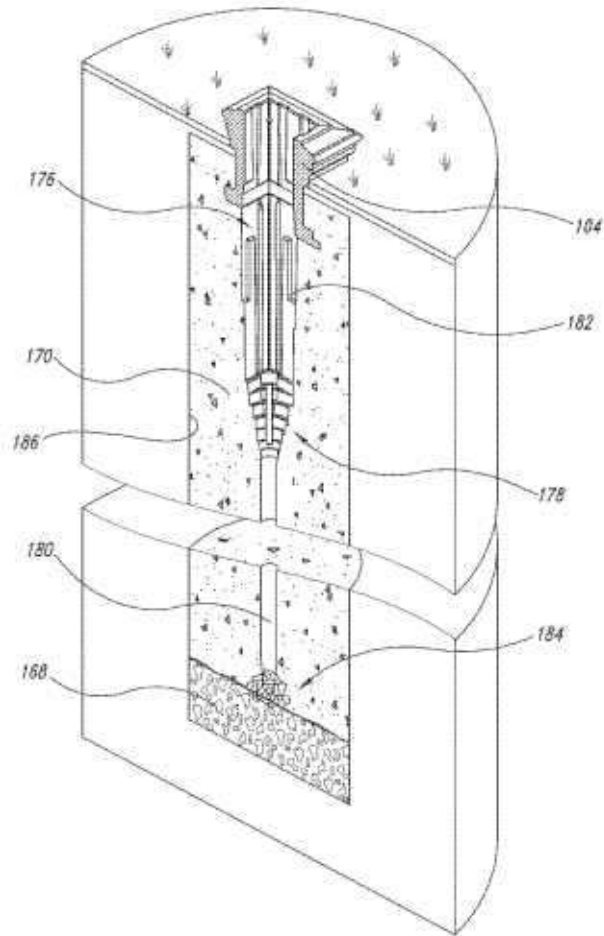
PR - US201514933975
20151105; US201414196952
20140304; US201113243843
20110923; US201161533702P
20110912

AP - US201514933975 20151105

DT - **

CT - || R141 (A1)
[US4618287](#) A 19861021 [
] (KINNAN FRANK [US]);
[US4621950](#) A 19861111 [
] (KINNAN FRANK [US]);
[US5516236](#) A 19960514 [
] (WILLIAMS LUCIAN T [US], et al);
[US5568909](#) A 19961029 [
] (TIMKO ROBERT J [US]);
[US6991413](#) B2 20060131 [
] (BALLOU DANIEL B [US], et al);
[US2006037265](#) A1 20060223 [
] (LEEK WILLIAM F [US]);
[US7393157](#) B1 20080701 [
] (MACIAS RICHARD A [US]);
[US7677000](#) B2 20100316 [
] (WALKER SIMON [CA]);
[US2012006964](#) A1 20120112 [
] (BERGMAN RICHARD [CA]);
[US8256184](#) B2 20120904 [
] (LOWE HARRY [CA]);
[US9085915](#) B1 20150721 [
] (EMMETT TROY [US]);
[US9138812](#) B2 20150922 [
] (STALEMARK ERIC [US])

- || STSE (B2)
[US4618287](#) A 19861021 [
] (KINNAN FRANK [US]);
[US4621950](#) A 19861111 [
] (KINNAN FRANK [US]);
[US5516236](#) A 19960514 [
] (WILLIAMS LUCIAN T [US], et al);
[US5568909](#) A 19961029 [
] (TIMKO ROBERT J [US]);
[US6991413](#) B2 20060131 [
] (BALLOU DANIEL B [US], et al);
[US7393157](#) B1 20080701 [
] (MACIAS RICHARD A [US]);
[US7677000](#) B2 20100316 [
]



] (WALKER SIMON [CA]);
[8556184](#) B2 20120904 [
] (LOWE HARRY [CA]);
[US9085915](#) B1 20150721 [
] (EMMETT TROY [US]);
[US9138812](#) B2 20150922 [
] (STALEMARK ERIC [US]);
[US2006037265](#) A1 20060223 [
] (LEEK WILLIAM F [US]);
[US2012006964](#) A1 20120112 [
] (BERGMAN RICHARD [CA])

CCI - [E04H12/2269](#) ; [E01F9/685](#)
 CUI - [E04H12/22](#) ; [E04H12/2215](#) ;
[E04H17/263](#) ; [E01F9/673](#)
 CQI - [E02D5/80](#) ; [E02D27/42](#) ;
[E04G21/02](#) ; [E04C3/00](#)
 CCA - [E04H17/22](#)
 PA - (A1 B2)
 KNUDSEN N ERIC [US]
 TI - (A1)
 DEVICE FOR FORMING POST
 SLEEVES AND RELATED METHODS
 - (B2)
 Device for forming post sleeves
 and related methods
 AB - (A1 B2)
 A method of forming a post
 sleeve within a post hole in the
 ground to include a post
 receiving **cavity** to insertably
 receive and support a post is
 provided. The method includes
 positioning a post sleeve **core**
 within the post hole with the aid
 of an elongate installation
 member and depositing uncured
 material into the post hole to at
 least partially surround the post
 sleeve **core** while the post
 sleeve **core** is attached to the
 elongate installation member.
 The method further includes
 allowing the uncured material to
 harden around the post
 sleeve **core** to form at least a
 portion of the post-
 receiving **cavity** of the post sleeve

and removing the post sleeve **core** from the hardened material to expose the post receiving **cavity** to receive and support the post. Other related methods of forming post sleeves are also provided.

6/51 © EPODOC / EPO

PN - [CN204691062U](#) U 20151007
PR - CN20152265676U 20150429
AP - CN20152265676U 20150429
DT - I
PA - LIAONING BOHAI ANTI CORROSION ENGINEERING CO LTD
TI - C type backplate
AB - The utility model relates to a C type backplate, C type back galvanized sheet becomes the rectangle with C type galvanized steel sheet built -up connection, and the recess size of C type galvanized steel sheet is greater than the recess size of C type back galvanized sheet, C type back galvanized sheet and the interior fixedly connected with **core** of C type galvanized steel sheet built -up connection's rectangle **cavity**, the **core** is snakelike distribution, and **core** distribution length corresponds with rectangle **cavity** area. Adopt the process of bending entirely, through **core** bonded adhesives, PVC membrane and galvanized steel sheet fixed connection one -tenth backplate, not only light in weight gives sound insulation, and absorbing effect and sealing performance obtain improving.

7/51 © EPODOC / EPO

PN - [CN204386027U](#) U 20150610
PR - CN20142823530U 20141222
AP - CN20142823530U 20141222
DT - I
PA - ZHEJIANG INST COMMUNICATIONS
TI - Energy consumption stiffened steel macromolecule interlayer tube
AB - The utility model discloses an energy consumption stiffened steel macromolecule interlayer tube. The energy consumption stiffened steel macromolecule interlayer tube comprises an outer metal tube, an inner metal tube, n stiffening plates, a cover plate and a **core** material, wherein n is an integer which is greater than or equal to 3; the outer metal tube is concentrically arranged in the inner metal tube; the bottoms of the stiffening plates are connected to the outer wall of the inner metal tube; the tops of the stiffening plates are connected to the inner wall of the outer metal tube; with view of the cross section, the n stiffening plates are arranged on a circular ring between the inner metal tube and the outer metal tube at intervals in an equal arc manner; a cover plate is mounted at one end of each of the inner metal tube and the outer metal tube; an open **cavity** with one open end and one sealed end is formed between the inner metal tube, the outer metal tube, the n stiffening plates and the cover plates; the open **cavity** is filled with the **core** material; the **core** material adopts a microsphere-polyurethane complex material. The utility model also discloses a manufacturing process for the

energy consumption stiffened steel macromolecule interlayer tube. The energy consumption stiffened steel macromolecule interlayer tube is high in structure ductility and high in anti-fatigue performance, impact resistance, stability, durability and bearing capacity.

8/51 © EPODOC / EPO

PN - [CN104612324](#) A 20150513

PNFP - CN104612324B B 20170503

PR - CN20141808237 20141222

AP - CN20141808237 20141222

DT - I

CT - || STSE (A)

[AU2011100831](#) A4 20110818 [A] (WISE WASTE SOLUTIONS PTY LTD)

[A] 1-10

* 全文 *;

[CN204386027U](#) U 20150610 [R] (ZHEJIANG INST COMMUNICATIONS)

[R] 1,3-8

* 权利要求1-7 *;

[CN101942865](#) A 20110112 [A] (UNIV JIANGSU SCIENCE & TECH)

[A] 1-10

* 全文 *;

[CN101942864](#) A 20110112 [Y] (UNIV JIANGSU SCIENCE & TECH)

[Y] 1-10

* 说明书第[0008]、[0014]、[0018]-[0024]段 *;

[CN103850392](#) A 20140611 [A] (UNIV BEIJING TECHNOLOGY)

[A] 1-10

* 全文 *;

[JPH0351462](#) A 19910305 [A] (OHBAYASHI CORP)

[A] 1-10

* 全文 *;

[CN203066236U](#) U 20130717 [Y] (UNIV CHANGAN)

[Y] 1-10

* 说明书第[0006]、[0007]-[0008]、[0010]-[0012]、[0014]段，附图1-3 *

PA - (A)

ZHEJIANG INST COMMUNICATIONS

TI - (A)

An energy-dissipating stiffening steel polymer sandwich pipe and a manufacturing process thereof

AB - (A)

An energy-dissipating stiffening steel polymer sandwich pipe is provided. The sandwich pipe comprises a metal outer pipe, a metal inner pipe, n stiffening plates, a cover plate and a **core** material, wherein the n is an integer and not less than 3, the metal inner pipe is concentrically disposed in the metal outer pipe, bottoms of the stiffening plates are connected to the outer wall of the metal inner pipe, tops of the stiffening plates are connected to the inner wall of the metal outer pipe, and when seen from the cross section, the n stiffening plates are disposed at a circular ring between the metal inner pipe and the metal outer pipe at equivalent arc intervals. The cover plate is disposed at

one end of the metal inner pipe and the corresponding one end of the metal outer pipe. The metal inner pipe, the metal outer pipe, the n stiffening plates and the cover plate form an open-ended **cavity** having an open end and a closed end. The open-ended **cavity** is filled with the **core** material. The **core** material adopts a microbead-polyurethane composite material. A manufacturing process of the energy-dissipating stiffening steel polymer sandwich pipe is also provided. The sandwich pipe is high in structural ductility, and good in fatigue resistance, impact resistance, stability, durability and bearing capacity.

9/51 © EPODOC / EPO

PN - [US2015030815](#) A1 20150129

PR - UA20130086140
20130725; UA20130086956
20130823

AP - US201414337775 20140722

DT - *; Rep

CT - || R141 (A1)
[US1733779](#) A [];
[US5536541](#) A [];
[US6105321](#) A []

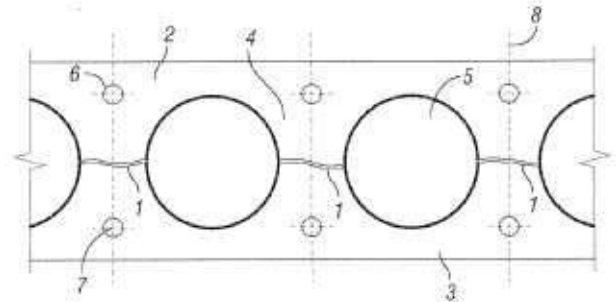
CCI - [E04B5/043](#) ; [E04C2/06](#)

CCA - [E04C5/0645](#) ; [Y10T428/24744](#)

PA - SCUSA CONSTRUCTION
TECHNOLOGIES LLC [US]

TI - HOLLOW-CORE FLOOR SLABS

AB - The instant invention pertains to various hollow- **core** slabs used, for example, in various construction applications. The slabs usually include a body with upper and lower shelves joined by two or more substantially vertical ribs and **cavities** extending longitudinally through the slab body. Two or more reinforcements extending longitudinally through the respective upper and lower shelves of the slab body may be present along with two or more reinforcements extending laterally between the upper and lower longitudinal reinforcements.



10/51 © EPODOC / EPO

PN - [US2014182238](#) A1 20140703

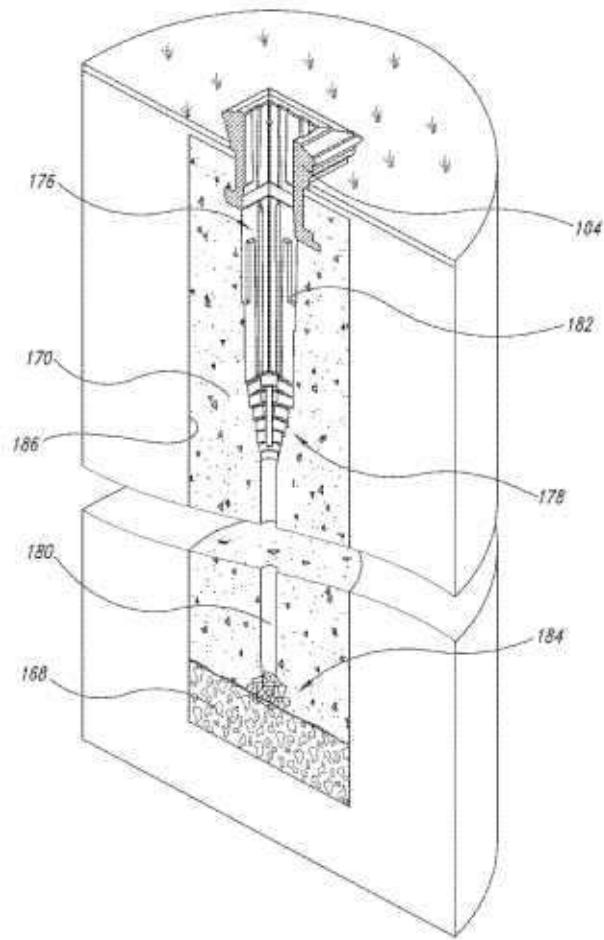
PNFP - US9212463 B2 20151215

PR - US201414196952
20140304; US201113243843
20110923; US201161533702P
20110912

AP - US201414196952 20140304

DT - **

CT - || R141 (A1)
[US2028680](#) A 19360121 [];
[US2684518](#) A 19540727 []
(WHITLOCK LESLIE A);
[US2712467](#) A 19550705 [];
[US3265349](#) A 19660809 []
(HAMRICK JAMES C);
[US3346230](#) A 19671010 [] (TOLF
JR CARL O);
[US3876970](#) A 19750408 []
(SCHWEITZER ROBERT B);
[US4079912](#) A 19780321 []
(HAYDOCK CHARLES EDWARD);
[US4077599](#) A 19780307 []
(OLAND JOHN H);
[US4515271](#) A 19850507 []
(AUCIELLO MICHAEL J [US], et al);
[US4634316](#) A 19870106 []
(CERNAK BORIS [CS], et al);
[US4688969](#) A 19870825 []
(BRUSER LEWIS [US], et al);
[US4850440](#) A 19890725 []
(SMET NIC H W [BE]);
[US5156755](#) A 19921020 [] (CASS
RONALD L [US]);
[US5405119](#) A 19950411 []
(MAGUIRE JAMES V [US]);
[US6041559](#) A 20000328 []
(SCHICKERT RANDY R [US], et al);
[US6267688](#) B1 20010731 []
(MORELLI SR ALAN J [US]);
[US7185720](#) B1 20070306 []
(MENNA THOMAS [US]);
[US2009090836](#) A1 20090409 []
(HARRIS ROBERT E [US]);
[US2009232606](#) A1 20090917 []
(PENZA BLAYDE [US]);
[US2009320396](#) A1 20091231 []
(KNUDSEN N ERIC [US]);



[US0277290](#) A1 20101104 [] (KNUDSEN N ERIC [US])
 - || STSE (B2)
[US2028680](#) A 19360121 [];
[US2684518](#) A 19540727 [] (WHITLOCK LESLIE A);
[US2712467](#) A 19550705 [];
[US3265349](#) A 19660809 [] (HAMRICK JAMES C);
[US3346230](#) A 19671010 [] (TOLF JR CARL O);
[US3876970](#) A 19750408 [] (SCHWEITZER ROBERT B);
[US4077599](#) A 19780307 [] (OLAND JOHN H);
[US4079912](#) A 19780321 [] (HAYDOCK CHARLES EDWARD);
[US4515271](#) A 19850507 [] (AUCIELLO MICHAEL J [US], et al);
[US4634316](#) A 19870106 [] (CERNAK BORIS [CS], et al);
[US4688969](#) A 19870825 [] (BRUSER LEWIS [US], et al);
[US4850440](#) A 19890725 [] (SMET NIC H W [BE]);
[US5156755](#) A 19921020 [] (CASS RONALD L [US]);
[US5405119](#) A 19950411 [] (MAGUIRE JAMES V [US]);
[US6041559](#) A 20000328 [] (SCHICKERT RANDY R [US], et al);
[US6267688](#) B1 20010731 [] (MORELLI SR ALAN J [US]);
[US7185720](#) B1 20070306 [] (MENNA THOMAS [US]);
[US2009090836](#) A1 20090409 [] (HARRIS ROBERT E [US]);
[US2009232606](#) A1 20090917 [] (PENZA BLAYDE [US]);
[US2009320396](#) A1 20091231 [] (KNUDSEN N ERIC [US]);
[US2010277290](#) A1 20101104 [] (KNUDSEN N ERIC [US])

CCI - [E04H12/2269](#) ; [E01F9/685](#)
 CUI - [E04H12/22](#) ; [E04H12/2215](#) ;
 [E04H17/263](#) ; [E01F9/673](#)
 CQI - [E02D5/80](#) ; [E02D27/42](#) ;
 [E04G21/02](#) ; [E04C3/00](#)

- CCA - [E04H17/22](#)
- PA - (A1 B2)
KNUDSEN N ERIC [US]
- TI - (A1)
DEVICE FOR FORMING POST
SLEEVESANDRELATEDMETHODS
- (B2)
Device for forming post sleeves
and related methods
- AB - (A1 B2)
A method of forming a post
sleeve within a post hole in the
ground to include a post
receiving **cavity** to insertably
receive and support a post is
provided. The method includes
positioning a post sleeve **core**
within the post hole with the aid
of an elongate installation
member and depositing uncured
material into the post hole to at
least partially surround the post
sleeve **core** while the post
sleeve **core** is attached to the
elongate installation member.
The method further includes
allowing the uncured material to
harden around the post
sleeve **core** to form at least a
portion of the post-
receiving **cavity** of the post sleeve
and removing the post
sleeve **core** from the hardened
material to expose the post
receiving **cavity** to receive and
support the post. Other related
methods of forming post sleeves
are also provided.

PN - [US2013227911](#) A1 20130905

PR - US201313850131
20130325; US20100727063
20100318; US20090161327P
20090318

AP - US201313850131 20130325

DT - **

CT - || R141 (A1)
[US2005241263](#) A1 20051103 [
] (VAN RIJN ROBERTUS C M [NL]);
[US2002135090](#) A1 20020926 [
] (KOREN ROBERT DOUGLAS [US]);
[US5597505](#) A 19970128 [
] (KOENIG DONALD H [US], et al);
[US5040251](#) A 19910820 [
] (HANFORD MARVIN R [US])

CCI - [E02D5/226](#) ; [E02D5/26](#) ;
[E02D27/42](#) ; [E04H12/2269](#) ;
[E01F9/629](#) ; [E01F9/623](#)

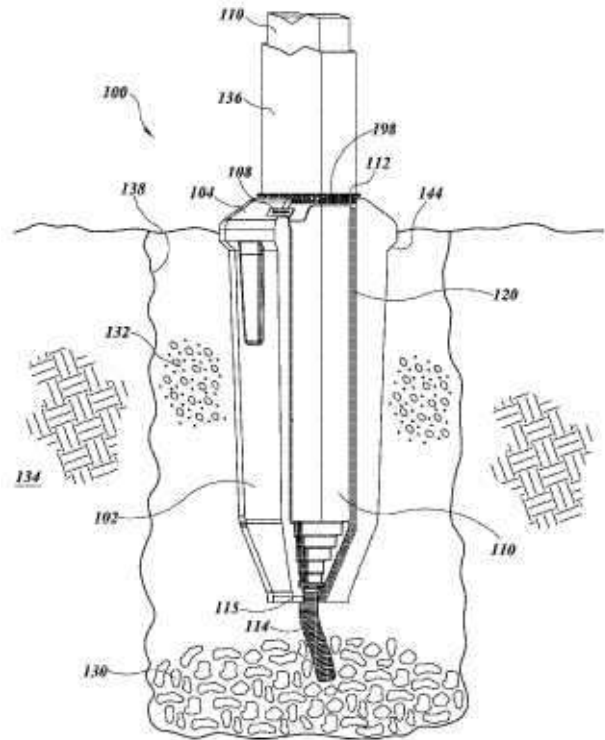
CUI - [B28B7/306](#) ; [E04H12/22](#) ;
[E04C3/00](#)

CCA - [G09F2007/1804](#)

PA - KNUDSEN N ERIC [US]

TI - POSTSLEEVE ASSEMBLY

AB - A post sleeve provides a substantially permanent base for supporting a post for a fence or sign, and from which one post can be removed and replaced with another post. The sleeve includes a concrete body that is poured on site, using a sleeve **core** prepositioned in the post hole, and around which wet concrete is poured. After the concrete is poured. After the concrete is cured, the **core** is removed, leaving a post sleeve **cavity** configured to receive a post. The **core** can be rigid, or can include a flexible shell and stiffener. A preformed post sleeve top can be attached to the sleeve **core** and positioned therewith in the post hole, to become a permanent part of the post sleeve, once the concrete cures. A drain is attached to



the **core**, and remains in the sleeve when the **core** is removed, and can be a percolation chamber, or passage extending below the sleeve.

12/51 © EPODOC / EPO

PN - [US2013212966](#) A1 20130822

PNFP - US8966837 B2 20150303

PR - US201313850125
20130325; US20100727063
20100318; US20090161327P
20090318

AP - US201313850125 20130325

DT - **

CT - || R141 (A1)
[US4773195](#) A 19880927 [
] (WALLER HARVEY [US]);
[US5961249](#) A 19991005 [
] (HANSEN DENNIS R [US], et al);
[US6041559](#) A 20000328 [
] (SCHICKERT RANDY R [US], et al);
[US2009025332](#) A1 20090129 [
] (RICHARDS DEAN EVAN [NZ]);
[US6273657](#) B1 20010814 [
] (VORONA VLADIMIR A [US])
- || STSE (B2)
[US4773195](#) A 19880927 [
] (WALLER HARVEY [US]);
[US5961249](#) A 19991005 [
] (HANSEN DENNIS R [US], et al);
[US6041559](#) A 20000328 [
] (SCHICKERT RANDY R [US], et al);
[US6273657](#) B1 20010814 [
] (VORONA VLADIMIR A [US]);
[US2009025332](#) A1 20090129 [
] (RICHARDS DEAN EVAN [NZ])

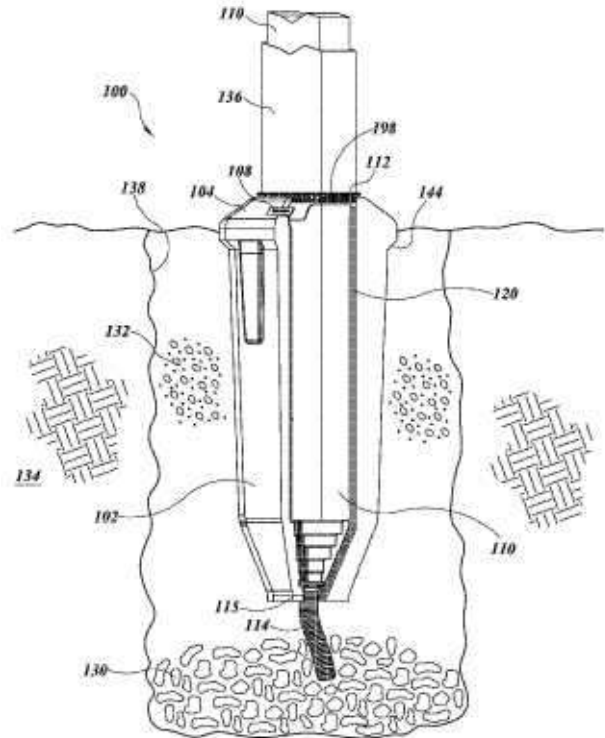
CCI - [E02D5/226](#) ; [E02D5/26](#) ;
[E02D27/42](#) ; [E04H12/2269](#) ;
[E01F9/629](#) ; [E01F9/623](#)

CUI - [B28B7/306](#) ; [E04H12/22](#) ;
[E04C3/00](#)

CCA - [G09F2007/1804](#)

PA - (A1 B2)
KNUDSEN N ERIC [US]

TI - (A1)



- (B2)
Post sleeve assembly

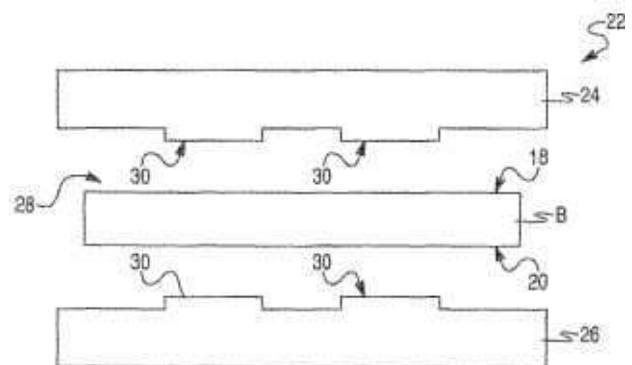
- (A1 B2)
A post sleeve provides a substantially permanent base for supporting a post for a fence or sign, and from which one post can be removed and replaced with another post. The sleeve includes a concrete body that is poured on site, using a sleeve **core** prepositioned in the post hole, and around which wet concrete is poured. After the concrete is cured, the **core** is removed, leaving a post sleeve **cavity** configured to receive a post. The **core** can be rigid, or can include a flexible shell and stiffener. A preformed post sleeve top can be attached to the sleeve **core** and positioned therewith in the post hole, to become a permanent part of the post sleeve, once the concrete cures. A drain is attached to the **core**, and remains in the sleeve when the **core** is removed, and can be a percolation chamber, or passage extending below the sleeve.

PN - [US2013125506](#) A1 20130523

PR - US201313732851
20130102; US201113210585
20110816; US20100755670
20100407; US20070648899
20070103; US20060755853P
20060104

DT - **

CT - || STSE (B2)
[US5887402](#) A 19990330 [
] (RUGGIE MARK A [US], et al)



~~US64625~~ B2 20040720 [] (WALSH JOHN PETER [US], et al)
[US8341919](#) B2 20130101 [] (HARDWICK GEOFFREY B [US], et al)
[US2005016121](#) A1 20050127 [] (HARDWICK GEOFFREY B [US], et al)

CCI - [B27N3/00](#) ; [B27N3/08](#) ;
[B27N5/00](#) ; [E06B3/7001](#) ;
[E06B3/7015](#) ; [E06B3/78](#)

CCA - [E06B2003/7025](#) ;
[Y10T29/49623](#) ;
[Y10T428/24504](#) ;
[Y10T428/24603](#)

PA - (A1)
MASONITE CORP [US]; MASONITE CORP [US]
- (B2)
MASONITE CORP [US]

TI - (A1 B2)
METHOD OF FORMING A **CORE** COMPONENT

AB - (A1 B2)
The present invention is directed to a method of forming a molded **core** component. A mat formed from cellulosic fiber and resin is provided. The mat is consolidated in a first press until the resin is substantially fully cured, and then removed from the first press. The consolidated mat is then placed in a second press having a mold **cavity** shaped to form at least one depression in at least one of the major surfaces. The consolidated mat is reformed in the second press to form a molded **core** component having at least one depression in at least one of the major surfaces. The molded **core** component has a variable density, preferably of between about 10 lbs/ft³ and 80 lbs/ft³.

14/51 © EPODOC / EPO

PN - [CN202899426U](#) U 20130424

PR - CN20122621779U 20121122

AP - CN20122621779U 20121122

DT - I

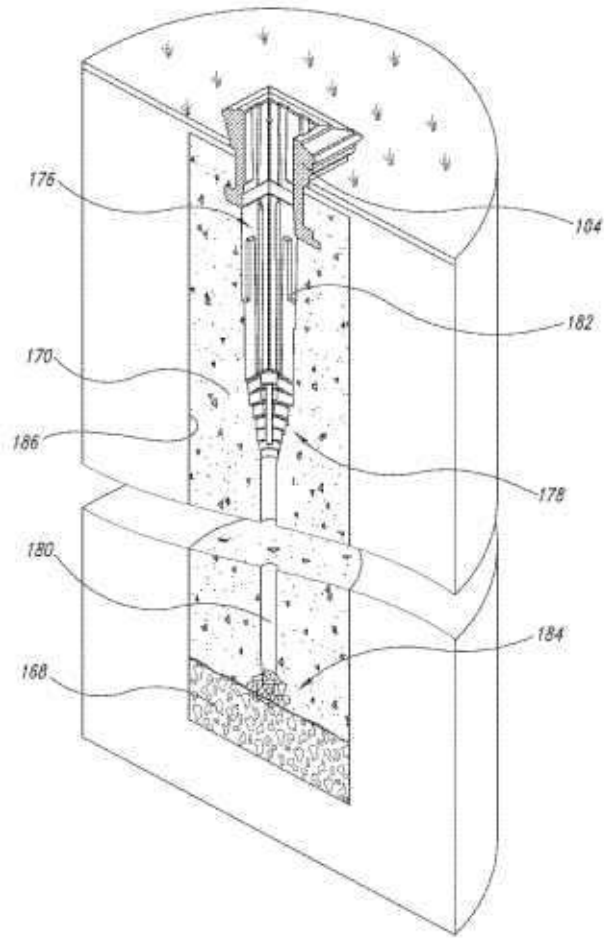
PA - SICHUAN OUK BUILDING MATERIALS SCIENCE & TECHNOLOGY CO LTD

TI - Heat-insulating, soundproof and fireproof integrated wallboard

AB - The utility model relates to a composite wallboard, in particular to a heat-insulating, soundproof and fireproof integrated wallboard, which has the advantages of heat preservation, heat insulation, sound insulation and fire prevention. The heat-insulating, soundproof and fireproof integrated wallboard comprises a board body with a **cavity** inside. The **cavity** of the board body is filled with cement foam materials which are used as a **core** layer. Holes are arranged in the side surfaces of the board body. One side surface of the board body is a groove and the other side opposite to one side of the board body is a raised part which is matched with the groove. Preset steel bars are longitudinally and evenly distributed between the internal surface and the external surface of the board body. Ribs which are connected with the internal surface of the board body are evenly distributed in the **cavity** of the board body. The wallboard provided by the utility model has the advantages of heat preservation, heat insulation, sound insulation, high strength and fire prevention, and not only can be used as outer walls for load bearing, but also can be used as inner walls for partition.

15/51 © EPODOC / EPO

PN - [US2013061555](#) A1 20130314
 PNFP - US8820007 B2 20140902
 PR - US201113243843
 20110923; US201161533702P
 20110912
 AP - US201113243843 20110923
 DT - *; Rep
 CT - || R141 (A1)
[US978505](#) A 19101213 [
] (STEWART WILLIAM R [US]);
[US1224926](#) A 19170508 [
] (HINDMARSH PERCY J [US]);
[US1906706](#) A 19330502 [
] (MOORE THOMAS F);
[US3638741](#) A 19720201 [
] (ZIZAK JOSEPH P);
[US3824748](#) A 19740723 [
] (PICHOWICZ J);
[US3894589](#) A 19750715 [
] (CIRAUD PIERRE ALFRED LEON);
[US4787601](#) A 19881129 [
] (RYBAK RICHARD A [US]);
[US4986373](#) A 19910122 [
] (CHARLAND GUY [CA], et al);
[US5339909](#) A 19940823 [
] (JENNE GUSTAV [DE], et al);
[US5542481](#) A 19960806 [
] (SCOTT GREGORY H [US]);
[US5992103](#) A 19991130 [
] (NORMAN TORBJORN [SE], et al);
[US6267688](#) B1 20010731 [
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[US2003121223](#) A1 20030703 [
] (RIKER RONALD D [US]);
[US7055807](#) B2 20060606 [
] (PESTA LEEANN [US]);
[US7621098](#) B2 20091124 [
] (REINERT SR GARY L [US]);
[US2009320396](#) A1 20091231 [
] (KNUDSEN N ERIC [US]);
[US2012311947](#) A1 20121213 [
] (VAN WISSEN JOHN [AU]);
[US4926785](#) A 19900522 [
] (LAMSON FREDERICK W [US]);
[US5752349](#) A 19980519 [
] (FITZSIMMONS JAMES N [US], et
 al);
[US6991413](#) B2 20060131 [



] (BALLOU DANIEL B [US], et al)
 - || STSE (B2)
[US978505](#) A 19101213 [
] (STEWART WILLIAM R [US]);
[US1224926](#) A 19170508 [
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] (MOORE THOMAS F);
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] (ZIZAK JOSEPH P);
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] (SCOTT GREGORY H [US]);
[US5752349](#) A 19980519 [
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 al);
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] (NORMAN TORBJORN [SE], et al);
[US6267688](#) B1 20010731 [
] (MORELLI SR ALAN J [US]);
[US6991413](#) B2 20060131 [
] (BALLOU DANIEL B [US], et al);
[US7055807](#) B2 20060606 [
] (PESTA LEEANN [US]);
[US7621098](#) B2 20091124 [
] (REINERT SR GARY L [US]);
[US2003121223](#) A1 20030703 [
] (RIKER RONALD D [US]);
[US2009320396](#) A1 20091231 [
] (KNUDSEN N ERIC [US]);
[US2012311947](#) A1 20121213 [
] (VAN WISSEN JOHN [AU])

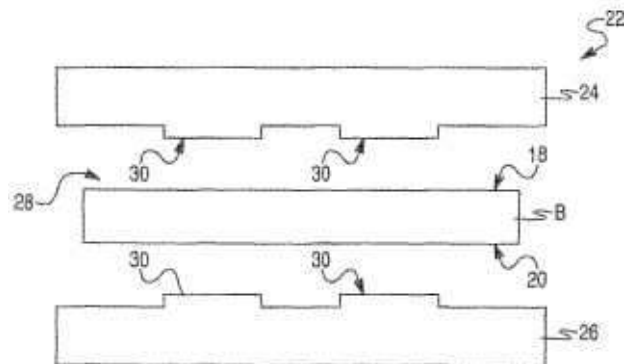
CCI - [E04H12/2269](#) ; [E01F9/685](#)
 CUI - [E04H12/22](#) ; [E04H12/2215](#) ;
[E04H17/263](#) ; [E01F9/673](#)
 CQI - [E02D5/80](#) ; [E02D27/42](#) ;
[E04G21/02](#) ; [E04C3/00](#)

CCA	- E04H17/22
PA	- (A1 B2) KNUDSEN N ERIC [US]
TI	- (A1) DEVICE FOR FORMING POST SLEEVES, AND METHOD OF USE - (B2) Device for forming post sleeves, and method of use
AB	- (A1) A post sleeve installation assembly includes: an elastomeric sleeve core shaped to form a post sleeve when positioned in uncured concrete, a removable stiffener inside the core , an aperture extending lengthwise in the stiffener, a locking element positioned within the core , and an assembly plate coupled to the stiffener. The assembly plate clamps to a prefabricated sleeve element, with the core and stiffener positioned within a post cavity of the sleeve element, an installation stake is positioned in the aperture and prevented from sliding upwards by the locking element. A release point on the assembly plate permits an operator to release the locking element for removal of the stake. To install a post sleeve, the operator positions the installation assembly, clamped to a prefabricated sleeve element, in a post hole with the stake resting on the bottom, then fills the hole with concrete, manipulating the stake to position the assembly. - (B2) A post sleeve installation assembly includes: an elastomeric sleeve core shaped to form a post sleeve when positioned in uncured concrete,

a removable stiffener inside the **core**, an aperture extending lengthwise in the stiffener, a locking element positioned within the **core**, and an assembly plate coupled to the stiffener. The assembly plate clamps to a prefabricated sleeve element, with the **core** and stiffener positioned within a post **cavity** of the sleeve element. an installation stake is positioned in the aperture and prevented from sliding upwards by the locking element. A release point on the assembly plate permits an operator to release the locking element for removal of the stake. To install a post sleeve, the operator positions the installation assembly, clamped to a prefabricated sleeve element, in a post hole with the stake resting on the bottom, then fills the hole with concrete, manipulating the stake to position the assembly.

16/51 © EPODOC / EPO

PN - [US2011296793](#) A1 20111208
 PNFP - US8341919 B2 20130101
 PR - US201113210585
 20110816; US20100755670
 20100407; US20070648899
 20070103; US20060755853P
 20060104
 AP - US201113210585 20110816
 DT - **
 CT - || STSE (B2)
[US5887402](#) A 19990330 [
] (RUGGIE MARK A [US], et al)
[US6764625](#) B2 20040720 [
] (WALSH JOHN PETER [US], et al)
[US7314534](#) B2 20080101 [
] (HARDWICK GEOFFREY B [US], et
 al)
[US2005016121](#) A1 20050127 [
] (HARDWICK GEOFFREY B [US], et



	al)
CCI	- B27N3/00 ; B27N3/08 ; B27N5/00 ; E06B3/7001 ; E06B3/7015 ; E06B3/78
CCA	- E06B2003/7025 ; Y10T29/49623 ; Y10T428/24504 ; Y10T428/24603
PA	- (A1) HARDWICK GEOFFREY B [US]; COGHLAN HENRY M [US]; WALSH JOHN PETER [US]; HILL ALLEN RAY [US] - (B2) MASONITE CORP [US]; HARDWICK GEOFFREY B [US]; COGHLAN HENRY M [US]; WALSH JOHN PETER [US]; HILL ALLEN RAY [US]
TI	- (A1) METHOD OF FORMING A CORE COMPONENT - (B2) Core component and door comprising thereof
AB	- (A1 B2) The present invention is directed to a method of forming a molded core component. A mat formed from cellulosic fiber and resin is provided. The mat is consolidated in a first press until the resin is substantially fully cured, and then removed from the first press. The consolidated mat is then placed in a second press having a mold cavity shaped to form at least one depression in at least one of the major surfaces. The consolidated mat is reformed in the second press to form a molded core component having at least one depression in at least one of the major surfaces. The molded core component has a variable density, preferably of between about 10 lbs/ft ³ and 80 lbs/ft ³ .

17/51 © EPODOC / EPO

- PN - [EP2415601](#) A2 20120208
- PNFP - EP2415601 A3 20120411
- EP2415601 B1 20130626
- PR - DE20101033581 20100805
- AP - EP20110006343 20110802
- DT - *; Rep
- CT - || STSE (A3)
[WO2005113230](#) A1 20051201
[AD] (SCHAEPPERS MICHAEL [DE])
[AD] 1-15
* page 11, line 2 - line 13 *
* page 24, line 13 - line 19 *
* figures 5,6 *;
[DE102008007516](#) A1 20090806
[A] (GENIMA INNOVATIONS
MARKETING G [DE])
[A] 1-15
* paragraph [0051] *
* figure 1 *;
[DE102007056690](#) A1 20090528
[A] (KRAUSS MAFFEI TECH GMBH
[DE])
[A] 1-15
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* figure 1 *;
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20090903 [XA] (GEYER WERNER
[DE])
[X] 15
* paragraph [0002] *
* paragraph [0016] *
* figures 1-3 *
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[B32B37/1284](#) ; [B32B37/14](#) ;
[B32B37/18](#) ; [B32B39/00](#) ;
[E04C2/3405](#)
- CCA - [B32B37/08](#) ; [B32B37/1292](#) ;
[B32B3/12](#) ; [B32B2038/1891](#) ;
[B32B2309/02](#) ; [B32B2309/04](#) ;
[B32B2309/12](#) ; [B32B2309/72](#) ;
[B32B2479/00](#) ; [B32B2605/00](#) ;
[B32B2607/00](#) ; [E04C2002/3438](#)
- PA - (A2 A3 B1)
WAAS ALFRED [DE]; WAAS

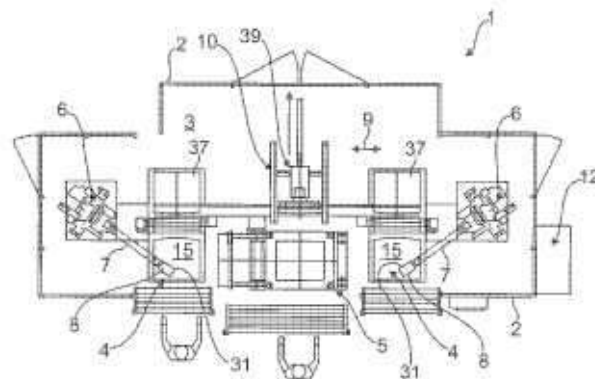


Fig. 1

THOMAS [DE]

TI

- (A2 B1)
Method and device for producing a sandwich board
- (A3)
Method and device for producing a sandwich board and **core** layer for a sandwich board

AB

- (A2)
The method for producing a sandwich board having a **core** layer or a middle layer (14) arranged between two cover layers, comprises fixedly connecting the **core**- or middle layer with the cover layers, where the middle layer is area-wisely formed in such a way that the middle layer forms a defined **cavity** structure between the both cover layers, applying and/or inserting the middle layer in a workpiece reception device (4), subsequently coating the middle layer with adhesive at both sides in defined middle layer areas in a flat manner, and feeding the coated middle layer to a pressing device (5). The method for producing a sandwich board having a **core** layer or a middle layer (14) arranged between two cover layers, comprises fixedly connecting the **core**- or middle layer with the cover layers, where the middle layer is area-wisely formed in such a way that the middle layer forms a defined **cavity** structure between the both cover layers, applying and/or inserting the middle layer in a workpiece reception device (4), subsequently coating the middle layer with adhesive at both sides in defined middle layer areas in a flat manner, and feeding the coated middle layer

to a pressing device (5) by using a transferring device (10), where the both cover layers are simultaneously connected and/or pressed with the middle layer in the pressing device. The middle layer is coated with adhesive by using an adhesive coating roller device (6) having a coating roller. The adhesive coating roller device has a spin spraying nozzle in addition to the coating roller. The middle layer is section-wisely sprayed with adhesive along a defined outer circumferential edge area by using the spin spraying nozzle. The adhesive is applied with the coating roller at the middle layer area inwardly subsequent to the circumferential edge area. The middle layer is turned around 180[deg] in the workpiece reception device after coating a first middle layer side. The second middle layer side is coated with adhesive in defined middle layer areas. The already coated middle layer side is subjected with heat by using a heating device after turning in the workpiece reception device in such a way that the first adhesive layer applied on the middle layer is heated at a defined temperature of larger than 80[deg] C. The coating roller is contour-adapted by using a control device and/or a regulating device and/or is processed in any space directions along the middle layer side to be coated in such a way that it has a constant distance to the area of the middle layer to be coated for the case. The areas of the middle layer to be coated is partially differently formed

and lie at different height levels viewed in cross-section, and have a shape, height and/or width. The middle layer has studs and valleys distanced from each other. A part of the studs is flattened at their peaks and the peaks form a flat adhesive coating surface, at which a flat adhesive bead or an adhesive point is flatly applied in defined middle layer areas by using the coating roller. A dent-like and/or crater-like recess is introduced into the adhesive coating surface formed by the dome-side flattenings. The transferring device receives the middle layer after the two-sided coating of the middle layer and supplies to the pressing device. A heating device, by which the newly applied adhesive layer is subjected with heat during transfer to the pressing device, is arranged to the transferring device in such a way that the adhesive layer subjected with heat is heated at a defined temperature of larger than 80 [deg] C. The middle layer both side coated with adhesive is pressed into the pressing device with the cover layers with a defined pressing force of more than 20t for a defined pressing time of 20 seconds. The pressing device is cooled by using a cooling device in such a way that the sandwich board of the middle layer and the cover layers are cooled at room temperature. A carpet layer or similar to be introduced on the sandwich board is provided with a welt-like edge at the outer circumferential side. The coating roller is coated with adhesive in defined lower side areas by the

welt-like edge in a flat manner. The coated carpet layer is introduced together with the sandwich board in a laminating tool and the carpet layer is laminated onto the sandwich board. The adhesive layer is introduced at the edge in a defined gap distance by using the coating roller. The area-wise adhesive coating is carried out in connection to the edge and is carried out in the gap distance area by using the spin spraying nozzle. Independent claims are included for: (1) a device for producing a sandwich board; and (2) a **core** layer or middle layer of a sandwich board having two cover layers.

18/51 © EPODOC / EPO

PN - [NZ567710](#) A 20110128

PR - AT20050001764
20051028; WO2006AT00141
20060406

AP - NZ20060567710 20060406

DT - I

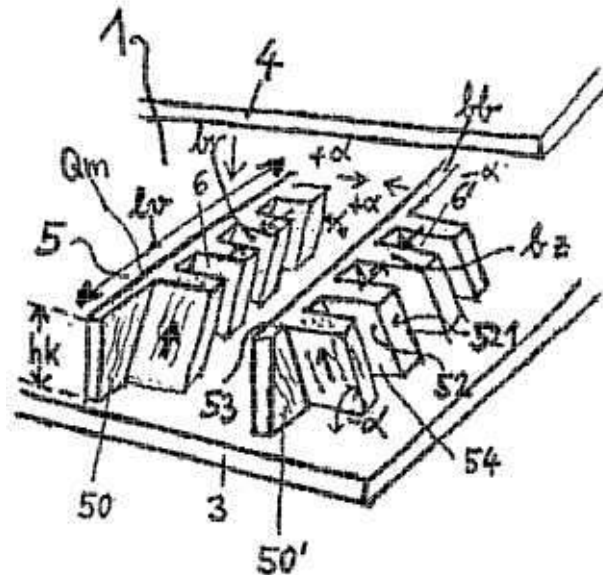
CCI - [B32B7/005](#) ; [B32B21/02](#) ;
[B32B3/12](#) ; [B32B3/26](#) ;
[E04C2/12](#) ; [E04C2/3405](#)

CCA - [B32B2307/304](#) ;
[B32B2307/3065](#) ; [B32B2307/56](#) ;
[B32B2419/00](#) ; [B32B2607/00](#) ;
[Y10T156/1062](#) ;
[Y10T428/24124](#) ;
[Y10T428/24182](#)

PA - BERGER JOHANN

TI - Building board with two outer layers and a centre layer with multiple slanted **cavities**

AB - A building board with a multi-layer structure, comprising two cover layers, and at least one **core** layer with multiple **cavities** is disclosed. The two cover layers (3, 4) are



spatially separated from each other and placed parallel to each other and the at least one **core** layer (5) of wood with multiple **cavities** (6, 6') is placed between them and joined to them. The two cover layers (3, 4) each comprise a layer, plate or foil material selected from the group consisting of: wood, wooden material, laminated wood, plywood, wood chip material or resinbound wood, metals, textile and fiber materials, cardboard, papers, plastics, fiber-reinforced plastics, mineral-based construction materials, rock, artificial stone as well as composite materials made of two or more of the materials just named. The at least one **core** layer (5) comprises at least one single-layer slanted-fiber **core** layer (5), joined to the cover layers (3, 4). The single-layer slanted-fiber **core** layer (5) is formed from a wood having a unitary fiber structure. The **cavities** (6, 6') have a slanted angle to the cover layers (3, 4) and the fibers of the slanted-fiber **core** layer (5) from a positive angle of +25 DEG to +80 DEG , and/or a negative angle of -25 DEG to -80 DEG , to the area of the two cover layers (3, 4). The slanted-fiber **core** layer (5) has a multiplicity of the positively-slanted and/or negatively-slanted slant **cavities** (6, 6') that fully run through the slanted fiber **core** layer (5) parallel to the particular fiber direction.

AP - CN20102117369U 20100224

DT - I

PA - HEILONGJIANG JINDINGSHAN BUILDING MATERIAL TECHNOLOGY DEV GROUP CO LTD

TI - Light composite hollow wall plate

AB - The utility model provides a light composite hollow wall plate, which is accurate in positioning and convenient in installation, and comprises a face plate, a **core** plate and positioning blocks. The face plate is respectively connected with the **core** plate and the positioning blocks, groove openings are arranged on four end surfaces of the face plate, straight-surface transition is arranged on the upper portions of the groove openings while groove openings in approximately splayed shapes are arranged on the lower portions, an upper plate and a lower plate are connected via a cross beam, and concave surfaces for adhering binders are arranged on the peripheries of an upper surface and a lower surface. The **core** plate is in a hollow **cavity** structure formed by adhering an upper **core** plate, a lower **core** plate and end plates, and a rectangular, cylindrical or ellipsoidal hollow **cavity** is arranged in the middle of the **core** plate and formed by shaping once. The positioning blocks are mounted on the groove openings of the wall plate, the shape of the section of each positioning block is coincided with that of the section of each groove opening, and the portion, projecting out of each groove opening, of each positioning block is cuboid. The wall plate does not generate cracks due to changes of temperature and humidity, is accurate in positioning during construction and convenient in installation, can guarantee sufficient mortar filling by adopting the mode of pouring mortar, and is high in construction efficiency and low in labor intensity.

20/51 © EPODOC / EPO

PN - [WO2010129983](#) A2 20101118

PNFP - WO2010129983 A3 20120315

PR - AT20090000753 20090514

AP - WO2010AT00165 20100514

DT - **

CT - |EP| ISR (A3)
[WO2005010293](#) A1 20050203 [Y] (XIAMEN NEW TECHNOLOGY INTEGRAT [CN])
[Y] 1-13
* abstract *;
[US2010112265](#) A1 20100506 [AP] (LENG LUHAO [CN])
[AP] 1-13
* paragraphs [0001] , [0048]; figure 1 *;
[AT503236](#) A2 20070815 [YD] (BERGER JOHANN [AT])
[YD] 1-13
* page 8; figure 2 *;
[WO2007048149](#) A1 20070503 [Y] (BERGER JOHANN [AT])
[Y] 1-13
* page 8, paragraph 2 - page 10, paragraph 1; figure 2 *;
[CH159886](#) A 19330215 [A] (XYLOTIN A G THUSIS [CH])
[A] 1-13
* page 1; figure 1 *;
[AU1011566](#) A 19690227 [A] (URS PETER GAUCHAT, DARRYL IVAN COOMBS)

[A] 1-13

* figures 1-4 *;

[DE202004012141U](#) U1 20041021 [A] (KETTLER BIRGIT [DE])

[A] 1-13

* figures 1-3 *

CCI - [B32B3/08](#) ; [B32B3/12](#) ; [E04C2/365](#) ; [E04C2/386](#)

PA - (A2 A3)
BERGERJOHANN [AT]

TI - (A2 A3)
LIGHTWEIGHT STRUCTURAL AND FURNITURE PANEL

AB - (A2 A3)
The invention relates to a novel structural and furniture panel consisting of a honeycomb-based lightweight composite material, said panel being formed by a **core** panel (2) consisting of a conventional honeycomb material with honeycombs (20) that are arranged perpendicularly to the principal surface (KHF) of the **core** panel, and cover layers (201) on the upper and lower faces. A reinforcement strip (3) is bonded to at least one of the side edge flanks (202) of the cover layers, said strip consisting of a lightweight diagonal-fibre wooden material (HLM) with diagonal **cavities**. The material has a grain (hf) running diagonally to the principal surfaces (PHF) of the panel at a positive and/or negative acute angle (a) of between +25 and -80° and/or between -25 and -80° and a plurality of diagonal **cavities** (31) that run parallel to the grain direction (hf), are separated by struts (32) and preferably have a rectangular cross-section. A common cover layer (4) is bonded to the respective principal surfaces (KHF and VHF) of the **core** panel (2) and the reinforcement strip (3) with the diagonal **cavities** that are open on both sides (31).

21/51 © EPODOC / EPO

PN - [DE102008050955](#) A1 20100415

PR - DE20081050955 20081010

AP - DE20081050955 20081010

DT - *; Rep

CCI - [B28B1/0873](#) ; [B28B1/0935](#) ;
[B28B7/28](#) ; [E04C2/06](#)

CCA - [B28B23/04](#)

PA - VEIT DENNERT KG BAUSTOFFBETR
[DE]

TI - Forming device for finished
concrete floor slabs, has plate-
shaped forming **cavity** which
forms forming table with side
walls, where **core** tubes are
arranged in forming **cavity** in
extendable manner, and
vibration unit is provided
for **core** tubes

AB - The forming device (2) has a

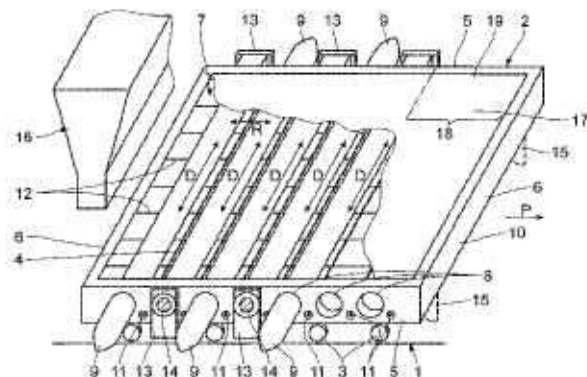


plate-shaped forming **cavity** (7) which forms a forming table (4) with side walls (5,6). A vibration device is provided for the form table, where **core** tubes (9) are arranged in the forming **cavity** in an extendable manner. A vibration unit is provided for the **core** tubes. Independent claims are included for the following: (1) a method for manufacturing finished concrete floor slabs; and (2) finished concrete floor slabs.

22/51 © EPODOC / EPO

PN - [US2009255213](#) A1 20091015

PR - US20080101646 20080411

AP - US20080101646 20080411

DT - **

CT - || R141 (A1)
[US6298619](#) B1 [];
[US1664867](#) A [];
[US1496022](#) A [];
[US2142771](#) A [];
[US3117902](#) A [];
[US3301732](#) A [];
[US3708385](#) A [];
[US5274974](#) A [];
[US5277002](#) A [];
[US6176637](#) B1 [];
[US2003003258](#) A1 [];
[US6511257](#) B1 [];
[US6672014](#) B1 [];
[US2009004423](#) A1 [];
[US2010005732](#) A1 [];
[US2230628](#) A [];
[US2231345](#) A [];
[US3170269](#) A [];
[US3425889](#) A [];
[US3562973](#) A [];
[US3791910](#) A [];
[US3866381](#) A [];
[US4074489](#) A [];
[US4074498](#) A [];
[US4373304](#) A [];
[US5285616](#) A [];
[US5718786](#) A [];

[US2007022707](#) A1 [
[US2007025588](#) A1 [
[US2008041013](#) A1 [
[US7658040](#) B2 [
[US3079649](#) A [
[US3082726](#) A [
[US3308013](#) A [
[US3646720](#) A [
[US3647590](#) A [
[US3719016](#) A [
[US4435928](#) A [
[US5100713](#) A [
[US2004040234](#) A1 [
[US6706406](#) B1 [
[US2005064128](#) A1 [
[US7509776](#) B2 [
[US2010050542](#) A1 [
[US2010050549](#) A1 [
[US2010050553](#) A1 [
[US8142879](#) B2 [
[US3436881](#) A [
[US3440790](#) A [
[US3949532](#) A [
[US4199909](#) A [
[US4917747](#) A [
[US5305577](#) A [
[US5509242](#) A [
[US5743056](#) A [
[US6050208](#) A [
[US2002038687](#) A1 [
[US7021014](#) B1 [
[US1377891](#) A [
[US1671084](#) A [
[US2159628](#) A [
[US4021982](#) A [
[US4024684](#) A [
[US5310594](#) A [
[US5625996](#) A [
[US6065259](#) A [
[US2003087572](#) A1 [
[US2003089061](#) A1 [
[US6565942](#) B2 [
[US6737155](#) B1 [
[US2006096205](#) A1 [
[US2008124576](#) A1 [
[US7371304](#) B2 [
[US2120200](#) A [
[US3256666](#) A [
[US3388514](#) A [

[US4336090](#) A [];
[US4841710](#) A [];
[US4936069](#) A [];
[US5771549](#) A [];
[US5910352](#) A [];
[US2002069600](#) A1 [];
[US2004103601](#) A1 [];
[US2005126699](#) A1 [];
[US2005138891](#) A1 [];
[US7056567](#) B2 [];
[US7062885](#) B1 [];
[US2007125042](#) A1 [];
[US7225596](#) B2 [];
[US8470425](#) B2 [];
[US3590540](#) A [];
[US3969868](#) A [];
[US5535556](#) A [];
[US5652039](#) A [];
[US6085469](#) A [];
[US6253530](#) B1 [];
[US6256960](#) B1 [];
[US6412247](#) B1 [];
[US6584740](#) B2 [];
[US6591557](#) B1 []

CCI - [B29C65/5057](#) ; [B29C65/5078](#) ; [B29C65/5085](#) ; [B29C65/54](#) ; [B29C66/0224](#) ;
[B29C66/112](#) ; [B29C66/114](#) ; [B29C66/1142](#) ; [B29C66/14](#) ; [B29C66/43](#) ; [B29C66/43441](#) ;
[B29C66/723](#) ; [B29C66/7252](#) ; [B29C67/0044](#) ; [B29C63/0034](#) ; [E04B1/61](#) ; [E04C2/243](#) ;
[E04C2/296](#)

CLC - [B29C66/7212](#) , [B29K2307/04](#) , ADD
 - [B29C66/7212](#) , [B29K2309/08](#) , ADD
 - [B29C66/7212](#) , [B29K2277/10](#) , ADD
 - [B29C66/71](#) , [B29K2067/00](#) , ADD
 - [B29C66/71](#) , [B29K2063/00](#) , ADD
 - [B29C66/71](#) , [B29K2077/10](#) , ADD
 - [B29C66/71](#) , [B29K2075/00](#) , ADD
 - [B29C66/71](#) , [B29K2061/04](#) , ADD
 - [B29C66/71](#) , [B29K2031/00](#) , ADD
 - [B29C66/71](#) , [B29K2025/06](#) , ADD
 - [B29C66/71](#) , [B29K2023/12](#) , ADD
 - [B29C66/71](#) , [B29K2001/00](#) , ADD

CCA - [B29C65/483](#) ; [B29C65/542](#) ; [B29C66/71](#) ; [B29C66/7212](#) ; [B29C66/72321](#) ;
[B29C66/72329](#) ; [B29C66/72521](#) ; [B29C66/72525](#) ; [B29C66/727](#) ; [B29C66/7394](#) ;
[B29K2023/12](#) ; [B29K2025/00](#) ; [B29K2031/00](#) ; [B29K2063/00](#) ; [B29K2067/00](#) ;
[B29K2075/00](#) ; [B29K2105/04](#) ; [B29K2105/06](#) ; [B29K2307/00](#) ; [B29K2309/08](#) ;
[B29L2009/00](#) ; [B29C65/488](#) ; [B29K2277/10](#) ; [B29L2031/10](#) ; [Y10T428/19](#) ;
[Y10T428/24744](#)

PA - INNOVIDA HOLDINGS INC [US]

- TI - SANDWICH PANEL WITH CLOSED EDGE AND METHODS OF FABRICATING
- AB - The edge of a construction element, such as a sandwich panel having a **core** and two outer layers, is closed such that forces acting on the construction element are directed to the outer layers and generally not through the panel **core**. A portion of the **core** may be removed to define a **cavity** within the construction element. A bonding material closes the edge by filling the **cavity** and forming a new edge that is substantially coplanar to the edges of the outer layers. The edge also can be closed by inserting the edge into a U-profile bracket and connecting the outer layers of the panel to side walls of the U-profile bracket.

23/51 © EPODOC / EPO

- PN - [WO2010028416](#) A2 20100318
- PNFP - WO2010028416 A3 20101007
- PR - AT20080001287 20080819
- AP - WO2009AT00316 20090819
- DT - **
- CT - |EP| ISR (A3)
[WO2007048149](#) A1 20070503 [AD] (BERGER JOHANN [AT])
 [AD] 1-17
 * the whole document *;
[FR761493](#) A 19340320 [A] (MATHIESEN, KNUD)
 [A] 1
 * figures 1-3 *;
[DE175877](#) C 00000000 [A] (INDUSTRIE FÜR HOLZVERWERTUNG AKTIEN-GESELLSCHAFT)
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 * figure 3 *;
[WO2006081596](#) A1 20060810 [A] (BERGER JOHANN [AT])
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 * Abbildungen *;
[DE9408382U](#) U1 19940804 [AD] (EGLE WILHELM [DE])
 [AD] 1
 * figures 1-2 *
- CCI - [B32B7/12](#) ; [B32B21/02](#) ; [B32B21/04](#) ; [B32B3/08](#) ; [E04C2/12](#) ; [E04C2/3405](#) ; [H02K41/03](#)
- CCA - [H02K7/14](#) ; [B32B2307/102](#) ; [B32B2307/304](#) ; [B32B2307/3065](#) ; [B32B2307/50](#) ; [B32B2307/718](#) ; [B32B2419/00](#) ; [B32B2479/00](#) ; [B32B2605/00](#) ; [B32B2605/003](#) ; [B32B2607/00](#)
- PA - (A2 A3)
 BERGER JOHANN [AT]
- TI - (A2 A3)
 WOODEN BOARD, PRODUCTION AND USE THEREOF IN CONSTRUCTION BOARDS OF SIMILAR
- AB - (A2 A3)
 The invention relates to novel wooden oblique fibre/oblique **cavity** strips that comprise two positive and negative oblique fibre/oblique **cavity** individual strips (50, 50') bonded together via their lateral flank planes (531). The invention also relates to **core** layer plates (5) comprising the novel strips (500), thus produced construction boards (1, 1')

and wall elements. The invention further relates to methods for producing novel construction boards and use thereof.

24/51 © EPODOC / EPO

PN - [CN101487315](#) A 20090722

PNFP - CN101487315B B 20130320

PR - CN2008103388 20080117

AP - CN2008103388 20080117

DT - I

PA - (A)
ZEYOU QIU [CN]
- (B)
QIU ZEYOU PATENT STRATEGY PLANNING CO LTD

TI - (A B)
Cast-in-situ concrete hollow slab

AB - (A)
A cast-in-place concrete hollow slab comprises cast-in-place concrete (54) and **core** modules (55); the **core** modules (55) are wrapped in the cast-in-place concrete (54), a basin-shaped element (1) which forms into the **core** modules (55) consists of a basin floor plate (4) and a basin side wall (5), the basin side wall (5) is provided with a vertical groove (2), the basin-shaped element (1) is also provided with a raising edge (3), the **core** modules (55) are mutually and closely leaned against or alternately arranged, cast-in-place concrete ribs (52) are arranged between the **core** modules, and the cast-in-place concrete forms a cast-in-place concrete bar (53) at the groove (2) part. The hollow slab is characterized in that two basin-shaped elements (1) can be oppositely buttoned together to form a close hollow **cavity**, a hole tube (27) is arranged at the middle of the basin-shaped element (1) and a cast-in-place concrete frusta or pole (56) is formed on the hole tube (27) part of the cast-in-place concrete. Therefore, when the **core** module is applied to a floor cover, the concrete can pass through the hole, the upper and the lower concrete of the **core** modules can be connected to an integer, the whole performance of the floor cover is improved, therefore, the purpose of the invention is achieved. The hollow slab is applicable to the cast-in-place reinforcing steel bar concrete or prestressed reinforcing steel bar concrete hollow floor cover, roof, wall, foundation slab and bridge, in particular to the use of the hollow floor cover.

25/51 © EPODOC / EPO

PN - [CN101363264](#) A 20090211

PNFP - CN101363264B B 20110427

PR - CN2008164769 20080620

AP - CN2008164769 20080620

DT - I

PA - (A)
HARBIN BINHONGSHENG HOUSE ENER [CN]
- (B)
HARBIN BINHONGSHENG HOUSE ENERGY SAVING SYSTEM RES & DEV CT

- II - (A B)
Energy-conserving construction bearing wall composite board
- AB - (A B)
The invention provides a conveniently combined bearing composite wall panel with the function of building energy conservation. The panel comprises a block molded by a die. Two pairs of mutually matching rib and flute splicing structures are arranged on the upper side and the lower side and the left side and the right side of a straight panel-shaped or angle-shaped block, the structures move upwards at the rabbet flute edge or lie downwards at the rib edge, which causes the block to be combined and spliced to form a **cavity** structure. The surface of the block is provided with a dovetail groove, the center of the rabbet is provided with a nearly elliptical single hole or a plurality of holes, the hole is provided with internal structure dovetail grooves which are corresponding to each other, the dovetail groove and concrete form a mechanical engagement. A plurality of blocks are combined into the straight panel-shaped and the angle-shaped block panel cores in a modular way according to building modulus, and the panel **core** is combined with building materials such as asbestos fiber cement slab, and the like, into composite thermal insulation bearing wall panel. The through holes in the wall panel and the **cavities** among the blocks are filled with concrete, which cause the inside of the wall body to form the bearing, thermal insulating and decorative composite wall body of checkered skeleton structure. The bearing composite wall panel has the advantages of reinforcing the wall body, enhancing the construction speed, lowering the building cost, improving the building quality, and prolonging the service life of the building.

PN - [US2002069600](#) A1 20020613

PR - US20010991269
20011113; US19980169059
19981009; US20000569693
20000511

AP - US20010991269 20011113

DT - *

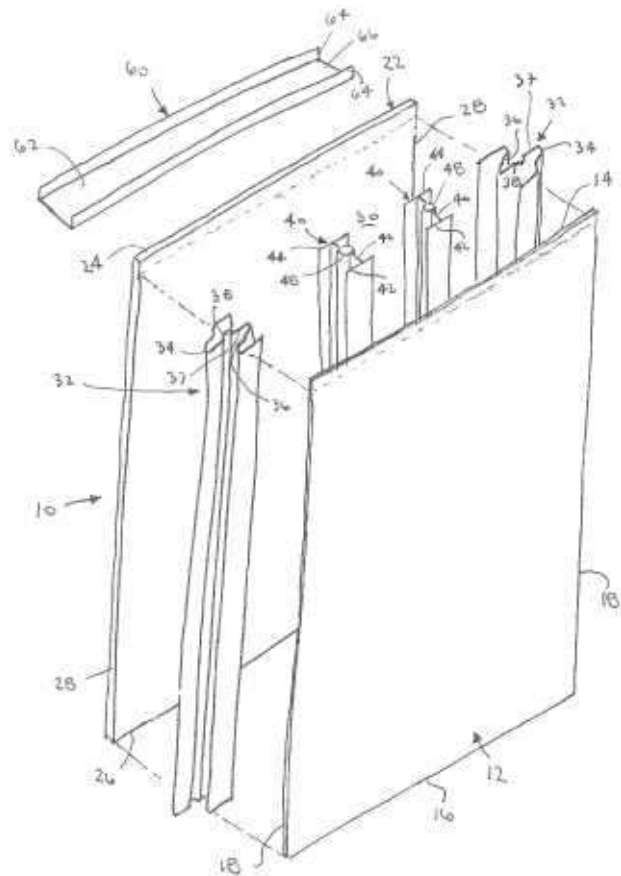
CCI - [E04B1/12](#) ; [E04B7/20](#) ;
[E04C2/20](#) ; [E04C2/3405](#)

CCA - [E04C2002/3455](#) ;
[E04D2003/3617](#)

PA - AMERICANSTRUCTURAL
COMPOSITES [US]

TI - Composite structural building
panels and systems and method
for erecting a structure using
such panels

AB - A composite panel includes a
first skin including composite
material, a second skin
including drywall material, and
a foam **core** therebetween. A
plastic connector extends along
side edges of the skins for
connecting the panel to another
composite panel including a
mating connector. The connector
includes a slot extending
parallel to the side edges for
receiving a pin therein, whereby
the panel may be connected to
another composite panel having
a similar connector and slot. An
I-beam is bonded between the
skins in the **cavity** that includes a
chase for receiving wiring or
other utilities therein. A "U"
shaped channel is also bonded
between the upper edges of the
first and second skins, thereby
defining a recess between the
upper edges for receiving a top
plate to secure a roof structure
to the panel.



PN - [US2002170250](#) A1 20021121

PNFP - US6571523 B2 20030603

PR - US20010855562 20010516

AP - US20010855562 20010516

DT - *

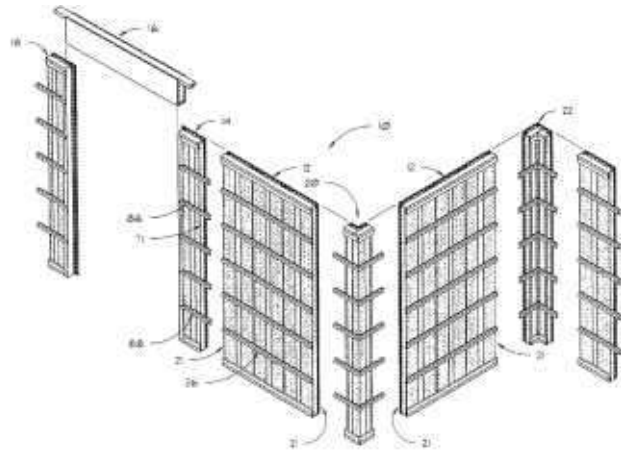
CT - (B2)
[US3159882](#) A []; [US3276797](#) A [];
[US3401494](#) A []; [US3979867](#) A [];
[US4109436](#) A []; [US4267679](#) A [];
[US4443988](#) A []; [US4478018](#) A [];
[US4671038](#) A []; [US4774119](#) A [];
[US5067296](#) A []; [US5265389](#) A [];
[US5377470](#) A []; [US5410849](#) A [];
[US5771645](#) A []; [US5799462](#) A [];
[US6044603](#) A []; [US6131897](#) A [];
[US6167624](#) B1 []; [US6308491](#) B1 [];
[US6421972](#) B1 []

CCI - [E04C3/02](#) ; [E04B1/14](#) ;
[E04C2/205](#)

CCA - [E04C2003/023](#)

TI - (A1 B2)
Wall framing system

AB - (A1)
A modular wall panel for manufacturing an exterior wall by abutting a plurality of said wall panels in side to side alignment is disclosed. Each of said wall panels consists of a substantially flat rectangular insulating foam **core** having first and second opposite surfaces, first and second opposite side edges, a width defined by the opposite side edges, opposite top and bottom edges, and a length defined by the top and



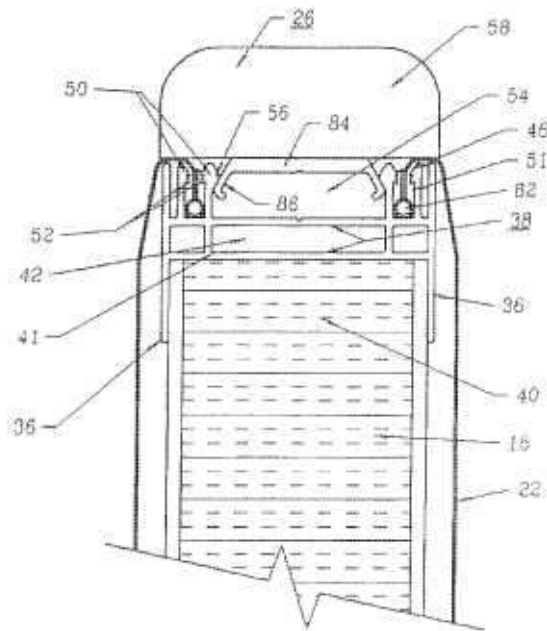
bottom edges. The panel also has at least one elongated longitudinal support stud mounted to the foam **core** between the first and second side edges. The longitudinal stud extends substantially the length of the foam **core** between the top and bottom edges, and extends parallel to the side edges. The panel also has at least one elongated transverse support stud mounted to the foam **core** substantially perpendicularly relative to the longitudinal support stud, said transverse support stud extending between the opposite side edges. The first side edge of the panel has a first face extending between the first and second opposite sides and the second side edge having a second face extending between the first and second opposite sides. The first and second faces are adapted and configured such that the first and second faces define an elongated first channel when the first face of one panel is abutted against the second face of an adjacent panel, said first channel having a elongated first **cavity** and an opening extending to the first surface of the panels.

- (B2)

A modular wall panel for manufacturing an exterior wall is made from a substantially flat rectangular insulating foam **core** having two opposite surfaces, two opposite side edges, a width defined by the opposite side edges, opposite top and bottom edges, and a length defined by the top and bottom edges. The panel also has at least one elongated longitudinal support stud and at least one elongated

transverse stud, each mounted to the foam **core**. The first side edge of the panel has a first face extending between the opposite surfaces and the second side edge has a second face extending between the opposite surfaces. Each face defines an elongated first channel when the first face of one panel is abutted against the second face of an adjacent panel and the first channel has an elongated first **cavity** and an opening extending to the first surface of the panels.

- 28/51** © EPODOC / EPO
- PN - [US5737893](#) A 19980414
- PR - CA19952161459 19951026
- AP - US19960735642 19961023
- DT - **
- CT - || STSE (A)
- [US3480313](#) A 19691125 [] (JOHN J HALKO JR, et al)
- [US3768222](#) A 19731030 [] (MONT BIRUM H)
- [US4104838](#) A 19780808 [] (GF BUSINESS EQUIP)
- [US4147198](#) A 19790403 [] (EXTRAVERSION INC)
- [US4690192](#) A 19870901 [] (STILLING JOHANN)
- [US4761922](#) A 19880809 [] (BLACK BRIAN E [NZ])
- [US4891922](#) A 19900109 [] (HAWORTH INC [US])
- [US5054255](#) A 19911008 [] (HERBERT MANINFIOR DESIGN ENGIN [US])
- [US5067543](#) A 19911126 [] (BOVE THOMAS A [US])
- [US5070666](#) A 19911210 [] (MILLER HERMAN INC [US])
- [US5125193](#) A 19920630 [] (SKYLINE DISPLAYS INC [US])
- [US5274975](#) A 19940104 [] (HAAG E KEITH [US])
- [US5394658](#) A 19950307 []

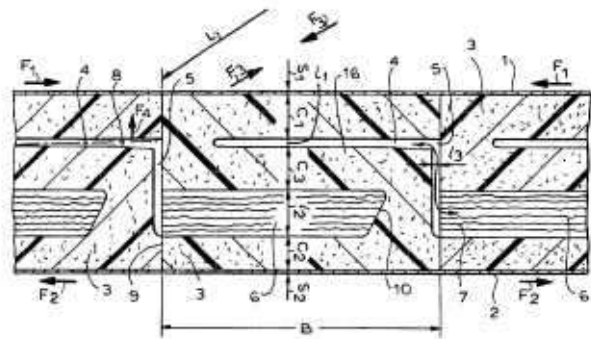


	] (SCHREINER CHARLES P [US], et al) CA1058372 A 19790717 [] (HARTER CORP) CA2017666 A1 19901209 [] (HARTER CORP [US]) CA2090386 A1 19940826 [] (VONDRESS FRANK [CA], et al) DE2027194 A1 19711216 [] GB2161193 A 19860108 [] (ASPEC LIMITED)
CCI	- E04B2/7425
CCA	- E04B2002/742 ; E04B2002/7479
PA	- TETRAD MARKETING SALES LTD [CA]
TI	- Panel construction and connection system
AB	- A light weight, upholstered panel for use in modular and free standing office landscaping systems. The panels form free standing partitions which can be rearranged and assembled into an office system. Panels can be interconnected and positioned over a range of angles relative to adjacent panels. The panel core is composed of a light weight composite structural material with perimeter frame members along each edge. Each frame member has the same cross-section along its length. The horizontal perimeter horizontal frame members are interconnected with the vertical frame members by corner connectors. The corner connectors have protrusions which engage hollow cavities in the ends of the frame members. The perimeter frame acts to transfer loads imposed on the panel to the structural core. The perimeter frame members incorporate formations to secure the panel fabric, trim and the inter-panel connection system in

place and provide recesses for fasteners and support hardware.

29/51 © EPODOC / EPO

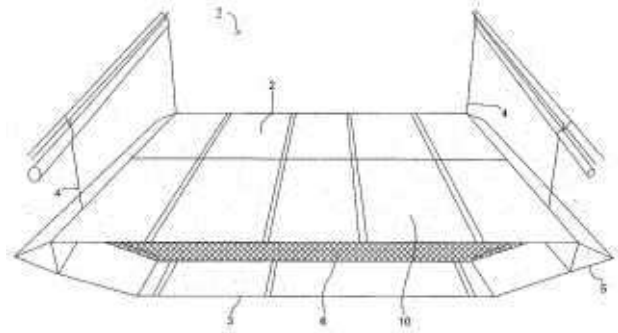
- PN - [US5664397](#) A 19970909
- PR - DE1995109972 19950318
- AP - US19960606489 19960304
- DT - **
- CT - [US2117397](#) A []; [US2728702](#) A [];
[US2960196](#) A []; [US3028278](#) A [];
[US3232017](#) A []; [US3239982](#) A [];
[US3412513](#) A []; [US3608264](#) A [];
[US3626044](#) A []; [US3791912](#) A [];
[US3903663](#) A []; [US4369608](#) A [];
[US4513041](#) A []; [US4555134](#) A [];
[US5258585](#) A []; [FR2376925](#) A1 [];
[DE763356](#) C []; [DE904461](#) C [];
[DE70794](#) C []; [DE3116938](#) A1 [];
[DE8624313U](#) U1 []; [DE3546050](#) A1 [];
[DE3927538](#) A1 []; [DE3932121](#) A1 [];
[DE9105019U](#) U1 []; [DE4107285](#) A1 [];
[DE9319082U](#) U1 []; [SU484114](#) A2 [];
[GB754299](#) A []
- CCI - [B61D17/04](#)
- CCA - [Y02T30/34](#)
- PA - KRAUSS MAFFEI
 VERKEHRSTECHNIK [DE]
- TI - Sandwich plate for use as motor-vehicle body part
- AB - A sandwich plate has a pair of relatively dense, stiff, thin, and generally parallel longitudinally extending skins, and a less dense **core** body having a pair of generally parallel faces bonded



to the skins and formed with longitudinal and transverse **cavities** connected together in a Z-shape and forming central longitudinally extending tongues.

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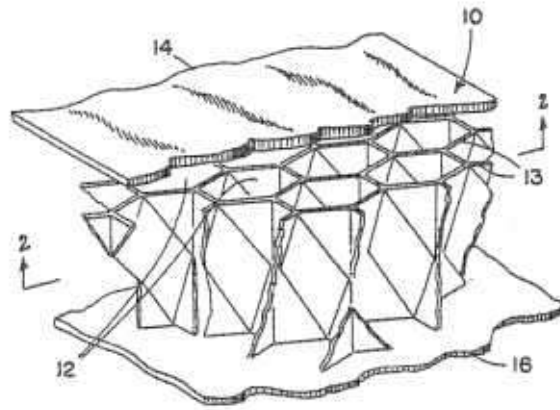
- PN - [US2005199166](#) A1 20050915
- PR - GB20020012392
20020529; WO2003GB02229
20030522
- AP - US20040515396 20041209
- DT - **
- CT - || R141 (A1)
[US3783082](#) A 19740101 [] (ALMOG E);
[US3864201](#) A 19750204 [] (SUSUKI RINNOSUKE, et al);
[US5508085](#) A 19960416 [] (LOCKSHAW JAMES J [US], et al);
[US6050208](#) B1 00000000 [];
[US5747142](#) B1 00000000 [];
[US5778813](#) B1 00000000 [];
[US3696452](#) A 19721010 [] (ZIEGLER EARLE)
- CCI - [B32B3/08](#)
- CUI - [B32B5/18](#) ; [B32B15/046](#) ;
[B32B15/08](#) ; [B32B15/18](#)
- CUA - [B32B2250/40](#)
- PA - INTELLIGENT ENGINEERING LTD BS
[EP]
- TI - Structural sandwich plate members
- AB - A structural sandwich plate member comprises first and second outer plates and a **core** material of plastics or polymer material. A plurality of lightweight forms are disposed between the outer plates so that the **core** material forms ribs extending in two substantially orthogonal directions. The lightweight forms may be hollow or solid and manufactured out of



foam, plastics or expanded polystyrene. The structural sandwich plate member is preferably formed by injecting the plastics or polymer **core** material into a closed **cavity** formed between the outer plates and in which the lightweight forms have been preplaced.

31/51 © EPODOC / EPO

- PN - [US4923544](#) A 19900508
- PR - US19890408698
19890918; US19880266386
19881102
- AP - US19890408698 19890918
- DT - *; Rep
- CT - || STSE (A)
[US2481046](#) A 19490906 [
] (SCURLOCK JAMES C);
[US2682235](#) A 19540629 [
] (BUCKMINSTER FULLER
RICHARD);
[US3058550](#) A 19621016 [
] (RICHTER DONALD L);
[US3209507](#) A 19651005 [
] (ROBERT DRESSER JAMES, et al);
[US3254459](#) A 19660607 [
] (BODLEY ROBERT W);
[US3354591](#) A 19671128 [
] (BUCKMINSTER FULLER
RICHARD);
[US3415027](#) A 19681210 [
] (SNYDER MARVIN K, et al);
[US3642566](#) A 19720215 [
] (FIGGE IRVING E);
[US3645833](#) A 19720229 [
] (FIGGE IRVING E);
[US3849237](#) A 19741119 [
] (ZETLIN L);
[US3906571](#) A 19750923 [
] (ZETLIN LEV);
[US3914486](#) A 19751021 [
] (BORGFORD SKAPTI JOSEF)
- CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [E04B1/19](#) ;
[E04C2/326](#) ; [E04C2/34](#) ;
[E04C2/3405](#) ; [E04C2/365](#)



- CCA - [E04B2001/1927](#) ;
[E04B2001/1978](#) ;
[E04B2001/1981](#) ;
[E04B2001/1987](#) ;
[E04B2001/199](#) ;
[E04B2001/1993](#) ;
[E04C2002/3494](#) ; [Y10S52/10](#) ;
[Y10T29/49906](#) ; [Y10T29/49988](#) ;
[Y10T156/1002](#) ;
[Y10T428/24149](#) ;
[Y10T428/24661](#)
- PA - TETRAHEX INC [US]
- TI - Method of manufacturing a tetrahexaconal truss structure
- AB - A lightweight, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities**. Each solid-walled **cavity** has a hexagonal base so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base. The walls of the **cavities** may be solid or they may be defined by a series of support struts for an even lighter weight structure. The upper and lower surfaces may be covered by skins, making it suitable for boat hulls, vacuum chambers, and aircraft.

PN - [967533](#) A 19901106

PR - US19890402451
19890901; US19880266386
19881102

AP - US19890402451 19890901

DT - *

CT - || STSE (A)
[US3642566](#) A 19720215 [] (FIGGE IRVING E);
[US3665882](#) A 19720530 [] (TANCHO D GEORGIEV, et al);
[US3842768](#) A 19741022 [] (MAISTRE M);
[US3974600](#) A 19760817 [] (SYNESTRUCTICS INC);
[US4241117](#) A 19801223 [] (US ARMY)

CTNP - [] Space Grid Structures, John Borrego, pp. 60, 70, 71, 1968

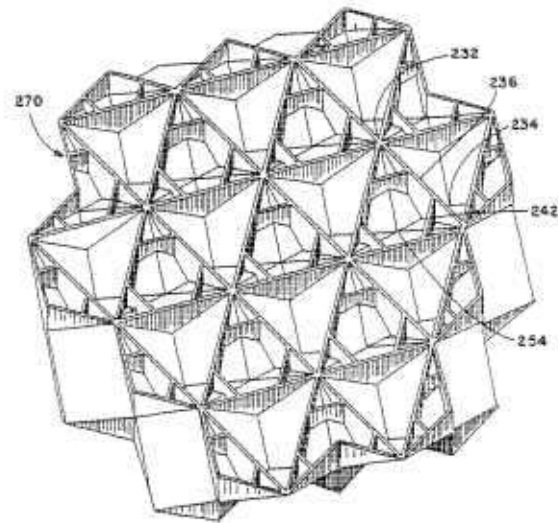
CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [F04B1/19](#) ;
[F04C2/326](#) ; [F04C2/34](#) ;
[F04C2/3405](#) ; [F04C2/365](#)

CCA - [E04B2001/1927](#) ;
[E04B2001/1978](#) ;
[E04B2001/1981](#) ;
[E04B2001/1987](#) ;
[E04B2001/199](#) ;
[E04B2001/1993](#) ;
[E04C2002/3494](#) ; [Y10S52/10](#) ;
[Y10T428/24678](#)

PA - TETRAHEX INC [US]

TI - Tetrahexagonal truss structure

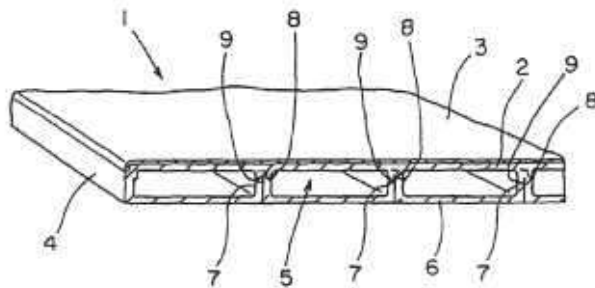
AB - A lightweight, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities**. Each solid-walled **cavity** has a hexagonal base so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base. The walls of the **cavities** may be solid or they



may be defined by a series of support struts for an even lighter weight structure. The upper and lower surfaces may be covered by skins, making it suitable for boat hulls, vacuum chambers, and aircraft. The hexagonal bases of the solid walled **cavities** may be replaced by perpendicular support walls extending between the adjacent tetrahedral apices and/or hexagonal base vertices.

33/51 © EPODOC / EPO

- PN - [US6060144](#) A 20000509
- PR - JP19970059779 19970227
- AP - US19980031367 19980226
- DT - *; Rep
- CT - || STSE (A)
[US2985968](#) A 19610530 [] (BURTON RODGERS INC);
[US4894974](#) A 19900123 [] (JAWORSKI WALTER J [US]);
[JPH0453696](#) A 19920221 [] (SUGIYAMA KK);
[JPH06134842](#) A 19940517 [] (KYORAKU CO LTD);
[GB2182080](#) A 19870507 [] (DONN INC)
- CCI - [B29C49/24](#) ; [B29C49/4802](#) ;
[E04C2/246](#) ; [E04C2/34](#)
- CCA - [B29L2007/002](#) ; [B29C49/06](#) ;
[Y10T428/234](#) ; [Y10T428/24661](#) ;
[Y10T428/24744](#) ;
[Y10T428/23957](#) ; [Y10T428/2395](#)
- PA - KYORAKU CO LTD [JP]
- TI - Hollow panel having cover material bonded thereto and process for producing same
- AB - A hollow panel having a cover material bonded thereto includes a first wall having an inner surface and a substantially planar outer surface. A second wall opposes the first wall so as to define a



hollow space therebetween and has at least one protrusion formed therein. Each protrusion has a tip which is integrally joined to the inner surface of the first wall to form a double-walled rib bridging the hollow space. The double-walled rib has integrally joined opposing walls such that an outer surface of the second wall is substantially planar. The cover material is bonded to the outer surface of the first wall. A process for producing a hollow panel includes placing a cover material having outwardly protruding fuzzy hairs between a first mold half and a first portion of a parison to be formed into a first wall such that the fuzzy hairs face the first mold half, bringing the first mold half and a second mold half having a slide **core** positioned therein into a closed position, moving said slide **core** into a **cavity** defined by the first and second mold halves to form a protrusion in a second portion of the parison to be formed into a second wall, the protrusion having a tip integrally joined to the first portion of the parison, retracting the slide **core** within the second mold half, and introducing a pressurized gas into the parison such that the parison is pressed against the first and second mold halves to bond the cover material to the first wall without substantial matting of the fuzzy hairs and opposing sides of the protrusion are pressed together to form a double-walled rib.

PN - [SK5852002](#) A3 20020806

PNFP - SK286642B B6 20090305

PR - GB19990026333
19991105; GB20000024183
20001003; WO2000GB04198
20001102

AP - SK20020000585 20001102

DT - I

CCI - [B29C70/745](#) ; [B32B15/06](#) ;
[E04C2/292](#) ; [E04C2/34](#) ;
[E04C2/3405](#)

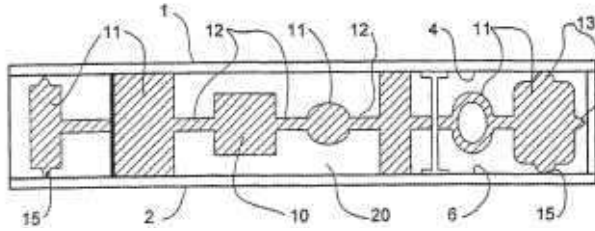
CCA - [B29L2024/006](#) ; [B29L2009/003](#) ;
[B63B3/14](#) ; [B63B5/00](#) ;
[B63B2005/245](#) ;
[E04C2002/3477](#) ;
[Y10T428/24744](#)

PA - (A3 B6)
INTELLIGENT ENGINEERING LTD BS
[BS]

TI - (A3)
COMPOSITE STRUCTURAL
LAMINATE PLATE CONSTRUCTION

- (B6)
Structural laminate member and
method for making thereof

AB - (B6)
A structural laminate member
comprising a first metal layer (1)
having a first inner surface (4)
and a first outer surface (3), a
second metal layer (2) having a
second inner surface and (6) a
second outer surface (5),
whereby the second metal layer
(2) being spaced apart from said
first metal layer (1); a form (10)
located between the first inner
surface (4) and the second inner
surface (6) and an intermediate
layer (20) comprised of an
elastomer located in the spaces
between the first inner surface
(4) and the second inner surface
(6) not occupied by the form (10)
and adhered to the first inner
surface (4) and the second inner
surface(6). A method of making a



structural laminate member comprising the steps of: providing first and second layers in a spaced apart relationship with a form partly in contact with both metal layers located in a **core cavity** defined between the two plates, said form partially filling the **core cavity**, casting an uncured elastomer into the **core cavity**, and curing said elastomer so that it adheres to the metal layers.

35/51 © EPODOC / EPO

PN - [JPH04371638](#) A 19921224

PNFP - JP2505323B B2 19960605

PR - JP19910148455 19910620

AP - JP19910148455 19910620

DT - I

FI - B32B19/00; B32B3/30; E04C2/04&E; E04C2/34&Q; E04C2/52&A

FT - 2E162/CA00; 2E162/CA31; 2E162/CA35; 2E162/FA00; 2E162/FA03; 2E162/FA05; 2E162/FA09; 4F100/AA00B; 4F100/AA00D; 4F100/AA00H; 4F100/AA08H; 4F100/AA19H; 4F100/AC00A; 4F100/AC00B; 4F100/AC00C; 4F100/AC00D; 4F100/AC02H; 4F100/AC10; 4F100/AC10H; 4F100/AG00; 4F100/BA04; 4F100/BA06; 4F100/BA10B; 4F100/BA10D; 4F100/BA12; 4F100/BA13; 4F100/BA32; 4F100/CA23B; 4F100/CA23D; 4F100/CA24; 4F100/CB00; 4F100/DA20; 4F100/DD05A; 4F100/DD05C; 4F100/DE04H; 4F100/DG01A; 4F100/DG01B; 4F100/DG01C; 4F100/DG01D; 4F100/DG06A; 4F100/DG06B; 4F100/DG06C; 4F100/DG06D; 4F100/EA02; 4F100/EA03; 4F100/EB041; 4F100/EC182; 4F100/ED751; 4F100/ED951; 4F100/EE02; 4F100/EG001; 4F100/EH411; 4F100/EJ311; 4F100/EJ861; 4F100/EK06; 4F100/GA04; 4F100/GB08; 4F100/JA14B; 4F100/JA14D; 4F100/JD15A; 4F100/JD15B; 4F100/JD15C; 4F100/JD15D; 4F100/JJ07; 4F100/JK05; 4F100/JK10; 4F100/JK11; 4F100/JK12; 4F100/JL01; 4F100/JL02; 4F100/JL03; 4F100/JL03H; 4F100/JL05; 4F100/JL16

PA - (A)
DAIKEN TRADE & INDUSTRY

TI - (A)
MANUFACTURE OF **CORE** MATERIAL FOR PANEL

AB - (A)
PURPOSE:To easily manufacture a **core** material for panel which is hard and dense in the surface and light and excellent in the shock-absorbing ability and further provided with a plurality of **cavities**. CONSTITUTION:A wet mat having mineral fibers as a chief element and constituting a dense surface layer 2 having inorganic filler is laminated to unify with a wet mat having mineral fiber as a chief component and constituting an intermediate layer 1. After a plurality of recessed grooves 3 are juxtaposed at the rear face of the wet mat of the intermediate layer 1 and dried, the first mineral fiber plate 4 is obtained. The rear face of the second mineral fiber plate having the high density

surface obtained in the same way is laminated with the rear face of the first mineral fiber plate 4 to unify together to form a **cavity** groove 6 at the recessed grooves 3. In this way, a **core** material for panel can be obtained, on which the front and rear faces of intermediate layers 1, light and excellent in shock-absorbing ability, are covered with hard and dense surface layers 2.

36/51 © EPODOC / EPO

- PN - [JPS57125025](#) A 19820804
- PR - JP19810009798 19810126
- AP - JP19810009798 19810126
- DT - I
- CT - || STSE (A)
[JPS4921244U](#) U 19740222 [];
[JPS495134U](#) U 19740117 []
- CCI - [B29C44/1266](#)
- FI - B29C39/00&X; B29C39/10; B29C39/40; B29C44/00; B29C44/00&A; B29C44/02; B29C44/14; B29C44/34; B29C44/36; B29C44/38; B29C44/40; B29C44/60; B32B5/20; E04B1/84&Z; E04C2/34&S
- FT - 2E001/AA02; 2E001/AB02; 2E001/AB03; 2E001/AE01; 2E001/AE02; 2E001/AE03; 2E001/AF02; 2E001/BA02; 2E001/CA01; 2E001/DD01; 2E001/FA00; 2E001/GA07; 2E001/GA12; 2E001/GA42; 2E001/GA45; 2E001/GA82; 2E001/HC01; 2E001/HD01; 2E001/HD03; 2E001/HD11; 2E001/LA01; 2E001/LA07; 2E162/CC01; 2E162/CD01; 2E162/CD04; 2E162/CE08; 2E162/DA09; 4F001/AJ19; 4F001/AK04; 4F001/BA03; 4F001/BA04; 4F001/BB02; 4F001/BB06; 4F001/CA04; 4F001/CA10; 4F001/DA01; 4F001/EA01; 4F001/FA01; 4F001/FB05; 4F001/FD01; 4F002/AA05; 4F002/AA06; 4F002/AC37; 4F002/KB03; 4F002/KC03; 4F002/KC14; 4F002/KC28; 4F002/LA02; 4F012/XX00; 4F100/AK01; 4F100/AK51; 4F100/AP00; 4F100/AT00A; 4F100/AT00B; 4F100/AT00C; 4F100/BA04; 4F100/BA05; 4F100/BA06; 4F100/BA07; 4F100/BA10A; 4F100/BA10B; 4F100/DB03; 4F100/DJ01D; 4F100/DJ01E; 4F100/EH132; 4F100/EH312; 4F100/EJ022; 4F100/EJ951; 4F100/GB08; 4F100/JJ02; 4F100/JK01; 4F100/JL02; 4F100/JL16; 4F204/AA42; 4F204/AA49; 4F204/AD01; 4F204/AD05; 4F204/AD06; 4F204/AD08; 4F204/AD15; 4F204/AD18; 4F204/AD24; 4F204/AD25; 4F204/AD35; 4F204/AE02; 4F204/AG02; 4F204/AG03; 4F204/AG20; 4F204/AG23; 4F204/AG26; 4F204/AG27; 4F204/AH47; 4F204/AH48; 4F204/AM32; 4F204/AR03; 4F204/AR12; 4F204/AR13; 4F204/EA01; 4F204/EB01; 4F204/EB12; 4F204/EB13; 4F204/EF01; 4F204/EF05; 4F204/EF27; 4F204/EF49; 4F204/EK26; 4F204/EL06; 4F204/EL24; 4F204/EL25
- PA - NIPPON LIGHT METAL CO
- TI - MANUFACTURE OF HEAT INSULATING PANEL
- AB - PURPOSE: To easily manufacture a heat-insulating panel having any thickness and any strength by a simplified apparatus in which a plate **core** is provided with a space between a pair of surface plates, and then an expandible substance is stuffed into the space and expanded. CONSTITUTION: A surface plate 1 is set on the lower plate 10 of an expander and heat insulating spacers 2 are placed at proper intervals on the plate 1. Then, a plate **core** material 3 is set on the spacers 2, the heat insulating spacers 2 are placed on the **core** material 3, and the surface plate 1 is placed on the spacers 2, a

mold 11 and an upper plate 12 are set. And, an expandible substance is injected into the mold 11 from an injection hole 11A provided in the mold 11 and expanded to form a heat-insulating panel. The panel is integrally molded with the expandible substance. Since the panel is given a proper strength by the **core** material 3 and also the heat of expansion is absorbed in the **core** material 3, no **cavities** are produced even in the central part of the panel.

37/51 © EPODOC / EPO

PN - [GB1100951](#) A 19680131
 PR - GB19630017455 19630502
 AP - GB19630017455 19630502
 DT - *
 CCI - [E04C2/22](#) ; [B29C70/00](#) ; [E04C2/3405](#)
 CCA - [B29K2309/08](#) ; [E04C2002/3438](#)
 PA - GOOLE PLASTIC HOMES LTD
 TI - Improvements in laminar building components
 AB - 1,100,951. Laminates. GOOLE PLASTIC HOMES Ltd. 30 July, 1964 [2 May, 1963], No. 17453/63. Headings B5A and B5N. A building panel consists of two facing elements of reinforced synthetic resin material and a **core** body between the facing elements, the **core** body being bonded to the facing elements by the synthetic resin material and providing **cavities** between the facing elements, the material reinforcing at least one of the facing elements including or consisting of silica filaments lying in the plane of the facing element. The **core** body may comprise conventional egg trays which may be stiffened by impregnation with polyvinyl chloride, a polyester or an epoxy resin. The silica reinforced element may also contain chopped glass fibres bonded to the silica filaments. In the example, the inner facing element is made by assembling in order in a mould, a resin, a resin filled with calcium carbonate or clay, silica filaments which may be in the form of mat and which have been previously covered with chopped glass fibres and a resin, filled resin, a glass fibre mat, a sodium silicate gel and sand or grit; the outer facing element is made by assembling in order in a mould, resin, a mixture of resin and chopped sea shells and a glass fibre mat; the **core** body is built up in one of the moulds by laying on the back of the facing a number of **core** elements e.g. of papier mŃchŮ or wood pulp which have been stiffened by impregnation with sodium silicate separated by strengthening ribs made of square section corrugated cardboard preimpregnated with sodium silicate and bearing on three sides resin impregnated glass mats; the two mould parts then being brought together under heat and pressure.

38/51 © EPODOC / EPO

PN - [GB2389072](#) A 20031203

PNFP - GB2389072 B 20050406

PR - GB20020012392 20020529

AP - GB20020012392 20020529

DT - *; Rep

CT - || STSE (A B)
[GB2374038](#) A 20021009 [
] (INTELLIGENT ENGINEERING
 [BS]);
[US3783082](#) A 19740101 [
] (ALMOG E);
[US5747142](#) A 19980505 [
] (BLEASDALE DESMOND HAROLD
 [AU])

CCI - [B32B3/08](#)

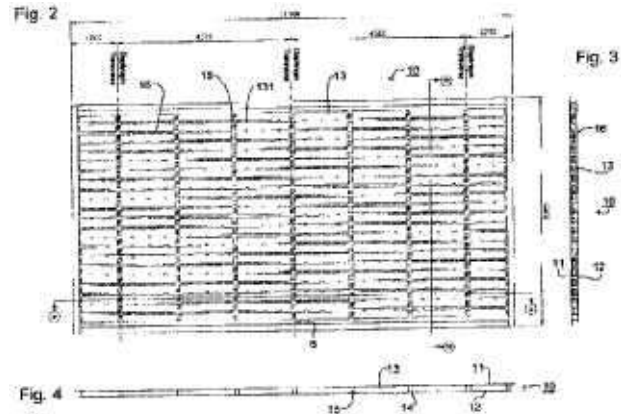
CUI - [B32B5/18](#) ; [B32B15/046](#) ;
[B32B15/08](#) ; [B32B15/18](#)

CUA - [B32B2250/40](#)

PA - (A B)
 INTELLIGENT ENGINEERING [BS]

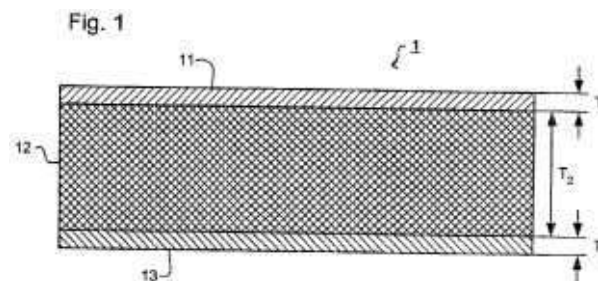
TI - (A)
 Structural sandwich plate
 members
 - (B)
 Improved structural sandwich
 plate members

AB - (A)
 A structural sandwich plate
 member comprises first and
 second outer plates (11, 12) and
 a **core** material (14) of plastics
 or polymer material. A plurality
 of lightweight forms (13) are
 disposed between the outer
 plates so that the **core** material
 forms ribs (15, 16) extending in
 two substantially orthogonal
 directions. The lightweight forms
 may be hollow or solid and
 manufactured out of foam,
 plastics or expanded
 polystyrene. The structural
 sandwich plate member is
 preferably formed by injecting
 the plastics or polymer **core**
 material into a closed **cavity**



formed between the outer plates
and in which the lightweight
forms have been preplaced.

- 39/51** © EPODOC / EPO
- PN - [GB2384461](#) A 20030730
- PNFP - [GB2384461](#) B 20050316
- PR - [GB20020001903](#) 20020128
- AP - [GB20020001903](#) 20020128
- DT - *; Rep
- CT - || STSE (A B)
[GB2053785](#) A 19810211 [
] (SCOTT BADER CO);
[GB2245217](#) A 19920102 [
] (VICKERS SHIPBUILDING & ENG
 [GB]);
[DE3200355](#) A1 19821021 [
] (GRUBE VEB KRAFTFAHRZEUG
 [DD]);
[EP0313171](#) A1 19890426 [
] (SCHREINER LUCHTVAART [NL]);
[EP0383409](#) A1 19900822 [
] (SCHREINER LUCHTVAART [NL]);
[EP0636463](#) A1 19950201 [
] (GROOT MARTIN THEODOR DE
 [NL]);
[JPH08197628](#) A 19960806 [
] (TOYO BOSEKI);
[JP2000167965](#) A 20000620 [
] (MITSUBISHI RAYON CO);
[JP2000168777](#) A 20000620 [
] (MITSUBISHI RAYON CO);
[US4596736](#) A 19860624 [
] (EICHHORN JACOB [US], et al);
[US4665678](#) A 19870519 [
] (MUELLER HANS [DE], et al);
[US6187411](#) B1 20010213 [
] (PALMER RAYMOND J [US])
- CCI - [B29C45/14467](#) ; [B32B27/06](#) ;
[E01D19/125](#) ; [E04C2/296](#)
- CUI - [B32B7/12](#) ; [B32B27/12](#) ;
[B32B27/40](#) ; [B32B1/02](#)
- CCA - [B29C45/0005](#) ; [B63B3/48](#) ;
[B63B3/56](#) ; [B63B5/24](#) ;
[B29C2045/14532](#) ;
[E01D2101/40](#) ; [B29K2705/00](#) ;
[Y10T428/1352](#) ; [Y10T428/269](#) ;



[Y10T428/24994](#) ;

[Y10T428/24995](#)

- CUA - [B32B2262/106](#)
- PA - (A B)
INTELLIGENT ENGINEERING [BS]
- TI - (A)
Structural sandwich plate member
- (B)
Improved structural sandwich plate members
- AB - (A)
A structural sandwich plate member comprises first and second face plates and a plastics or polymer **core** bonding the face plates together with sufficient strength to transfer shear forces therebetween, at least one of the face plates being formed of a non-metal reinforced composite material or reinforced polymer material such as polymer material reinforced with carbon fibre. The **core** may be polyurethane and non-foamed. Alternatively an existing metal structure may be reinforced by providing a reinforcing layer formed of a non-metal reinforced composite material or reinforced polymer material in spaced apart relation to form at least one **cavity** between inner surfaces of the metal structure and the reinforcing layer, injecting an uncured plastics or polymer **core** into the **cavity** or **cavities** and curing the plastics material. Applications include maritime structures, bridge panels, the hulls of ships or panels, storage tanks or pipelines.

PN - [GB2367526](#) A 20020410

PNFP - GB2367526 B 20040915

PR - GB20000024183 20001003

AP - GB20000024183 20001003

DT - **

CT - || STSE (A)
[GB2107247](#) A 19830427 [
] (MAUNSELL AND PARTNERS G);
[GB2337022](#) A 19991110 [
] (FERN INVESTMENTS LTD [GB]);
[GB2355957](#) A 20010509 [
] (INTELLIGENT ENGINEERING
 [BS]);
[CH690447](#) A5 20000915 [
] (MUELLER KALTBACH EISEN UND
 MET [CH]);
[EP0193182](#) A2 19860903 [
] (FAUN UMWELTECHNIK GMBH
 [DE]);
[JPH05272103](#) A 19931019 [];
[JPS6129534](#) A 19860210 [
] (TOYOTA MOTOR CORP);
[US5778813](#) A 19980714 [
] (KENNEDY STEPHEN J [CA]);
[US6050208](#) A 20000418 [
] (KENNEDY STEPHEN J [CA]);
[WO0059718](#) A1 20001012 [
] (BASF AG [DE], et al);
[WO9964234](#) A1 19991216 [
] (BASF AG [DE], et al)

- || STSE (B)
[GB2107247](#) A 19830427 [
] (MAUNSELL AND PARTNERS G);
[GB2337022](#) A 19991110 [
] (FERN INVESTMENTS LTD [GB]);
[GB2355957](#) A 20010509 [
] (INTELLIGENT ENGINEERING
 [BS]);
[CH690447](#) A5 20000915 [
] (MUELLER KALTBACH EISEN UND
 MET [CH]);
[EP0193182](#) A2 19860903 [
] (FAUN UMWELTECHNIK GMBH
 [DE]);
[JPH05272103](#) A 19931019 [];
[JPS6129534](#) A 19860210 [
] (TOYOTA MOTOR CORP);
[US5778813](#) A 19980714 [

Fig. 1



Fig. 5

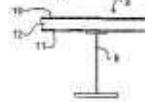


Fig. 3

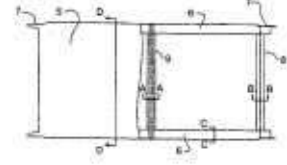
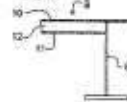


Fig. 6



] (KENNEDY STEPHEN J [CA]);
[US6050208](#) A 20000418 [
] (KENNEDY STEPHEN J [CA]);
[WO9964234](#) A1 19991216 [
] (BASF AG [DE], et al);
[WO0059718](#) A1 20001012 [
] (BASF AG [DE], et al)

CCI - [B29C70/745](#) ; [B32B15/06](#) ;
[E01D19/125](#) ; [E04C2/292](#) ;
[E04C2/34](#) ; [E04C2/3405](#)

CUI - [B32B5/18](#) ; [B32B7/08](#) ;
[B32B15/08](#) ; [B32B27/065](#)

CCA - [B29L2024/006](#) ; [B29L2009/003](#) ;
[B63B3/14](#) ; [B63B5/00](#) ;
[B63B2005/245](#) ; [E01D2101/30](#) ;
[E01D2101/40](#) ; [E04C2002/3477](#)

CUA - [B32B2250/40](#) ; [B32B2607/00](#)

PA - (A B)
 INTELLIGENT ENGINEERING [BS]

TI - (A)
 Sandwich plate panels for bridge
 decks
 - (B)
 Sandwich plate panels

AB - (A)
 Panels for bridge decks are made
 of a metal-plastic-metal
 sandwich with the plastic (12)
 bonded to the metal plates
 (10,11) so as to transfer shear
 forces therebetween. The
 sandwich plates may be
 constructed with either a solid
 plastic **core** or a composite **core**
 consisting of plastic, metal
 plates or structural shapes and
 forms within or without a frame
 of girders. Sandwich plate bridge
 panels without peripheral metal
 forms are held together only by
 the adhesion of the plastic to the
 metal plates. The panels may be
 made by fabricating a metal
 frame, placing the frame around
 a projecting block, placing a first
 metal plate on the projecting
 block within the frame, welding

the first plate to the frame, placing a second metal plate on the frame to form a **cavity** with the first metal plate, welding the second plate to the frame and injecting uncured plastic into the **cavity**. Alternatively upper and lower metal plates may be assembled in a mould, a form positioned between the upper and lower plates leaving voids, the mould closed and uncured plastic material being injected into the mould to fill the voids.

41/51 © EPODOC / EPO

- PN - [FR2332482](#) A1 19770617
- PR - DE19752552586 19751124
- AP - FR19760035432 19761124
- DT - **
- CCI - [E04B1/803](#) ; [E04B1/90](#) ; [E04C2/284](#) ; [E04C2/34](#) ; [F16L59/029](#)
- CCA - [Y02B80/12](#) ; [E04B2001/747](#) ; [E04B2001/8263](#) ; [E04B2001/8428](#) ; [E04B2001/8447](#) ; [E04B2001/8452](#) ; [E04B2001/8461](#) ; [E04B2001/8476](#) ; [Y02A30/242](#)
- PA - BECKER OTTO [DE]
- TI - Prestressed supporting constructional component - has plate or bar type parts prestressed to generate tension or compression loads
- AB - Constructional component is partic. for use as a support resisting compression and bending loads in buildings, foundations, bridges, vehicles etc. It has two or more plate- or bar-type parts, pre-stressed against each other, in order to generate compression or tension loads in them. It can comprise a dish section and supporting members subjecting the section to tension load. There can be two parts assembled to form an intervening **cavity** accommodating a supporting **core**, which absorbs a compression load perpendicular to the dish section surfaces. Inside the **core** there are supporting parts at intervals, parallel to the dish surfaces and exerting a pressure on their edges so as to pre-stress them.

42/51 © EPODOC / EPO

PN - [EP0415597](#) A1 19910306

PR - US19890402451 19890901

AP - EP19900308917 19900814

DT - **

CT - || STSE (A1)
[EP0367371](#) A1 19900509
 [XP] (TETRAHEX INC [US]);
[GB601957](#) A 19480518
 [A] (LESLIE STURMER JACOBSON);
[US3914486](#) A 19751021
 [AD] (BORGFORD SKAPTI JOSEF);
[US3417959](#) A 19681224
 [A] (SCHULTZ THOMAS E)

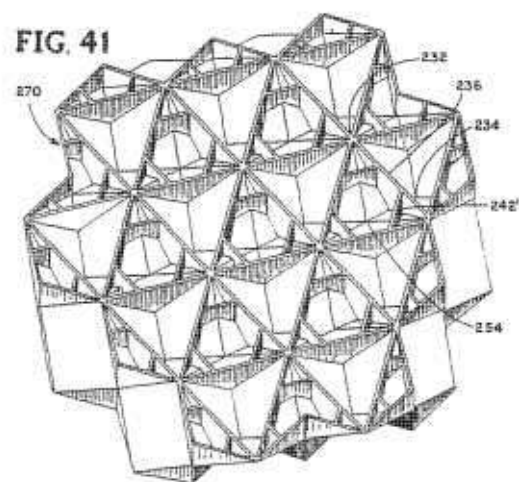
CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [E04B1/19](#) ;
[E04C2/326](#) ; [E04C2/34](#) ;
[E04C2/3405](#) ; [E04C2/365](#)

CCA - [E04B2001/1927](#) ;
[E04B2001/1978](#) ;
[E04B2001/1981](#) ;
[E04B2001/1987](#) ;
[E04B2001/199](#) ;
[E04B2001/1993](#) ;
[E04C2002/3494](#) ; [Y10S52/10](#) ;
[Y10T428/24678](#)

PA - TETRAHEX INC [US]

TI - Texrahexagonal truss structure and method.

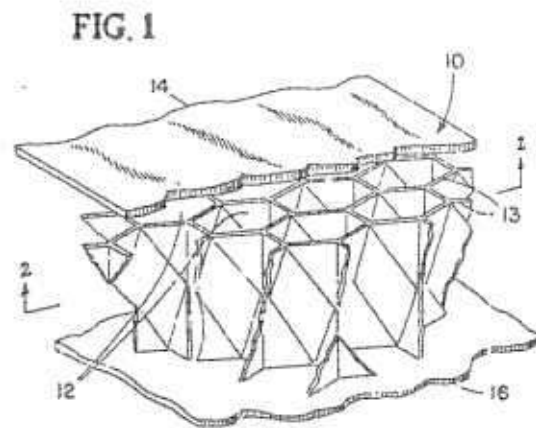
AB - A lightweight, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities** (12). Each solid-walled **cavity** (12) has a hexagonal base (24) so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** (12) has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base (24). The walls of the **cavities** may be solid or they may be defined by a series of support struts (63, 64) for an even lighter weight structure. The upper and lower surfaces may be covered by



skins (14, 16), making it suitable for boat hulls, vacuum chambers, and aircraft. The hexagonal bases of the solid walled **cavities** (12) may be replaced by perpendicular support walls (236, 242, 252) extending between the adjacent tetrahedral apices (232, 234) and/or hexagonal base vertices (254).

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- PN - [EP0367371](#) A1 19900509
- PNFP - EP0367371 B1 19911009
- PR - US19880266386 19881102
- AP - EP19890304748 19890510
- DT - *; Rep
- CT - || STSE (A1)
[GB601957](#) A 19480518
 [A] (LESLIE STURMER JACOBSON);
[US3642566](#) A 19720215
 [AD] (FIGGE IRVING E);
[WO8101807](#) A1 19810709
 [A] (HARDIGG IND INC [US], et al);
[US4381636](#) A 19830503
 [A] (SAPP DENNIS H);
[US3417959](#) A 19681224
 [A] (SCHULTZ THOMAS E)
- CCI - [B29C45/26](#) ; [B29C33/42](#) ;
[B29D99/0089](#) ; [E04B1/19](#) ;
[E04C2/326](#) ; [E04C2/34](#) ;
[E04C2/3405](#) ; [E04C2/365](#)
- CCA - [E04B2001/1927](#) ;
[E04B2001/1978](#) ;
[E04B2001/1981](#) ;
[E04B2001/1987](#) ;
[E04B2001/199](#) ;
[E04B2001/1993](#) ;
[E04C2002/3494](#) ;
[Y10T428/24149](#) ;
[Y10T428/24165](#)
- PA - (A1)
 TETRAHEX INC [US]
- TI - (A1)
 Tetrahexagonal truss structure.

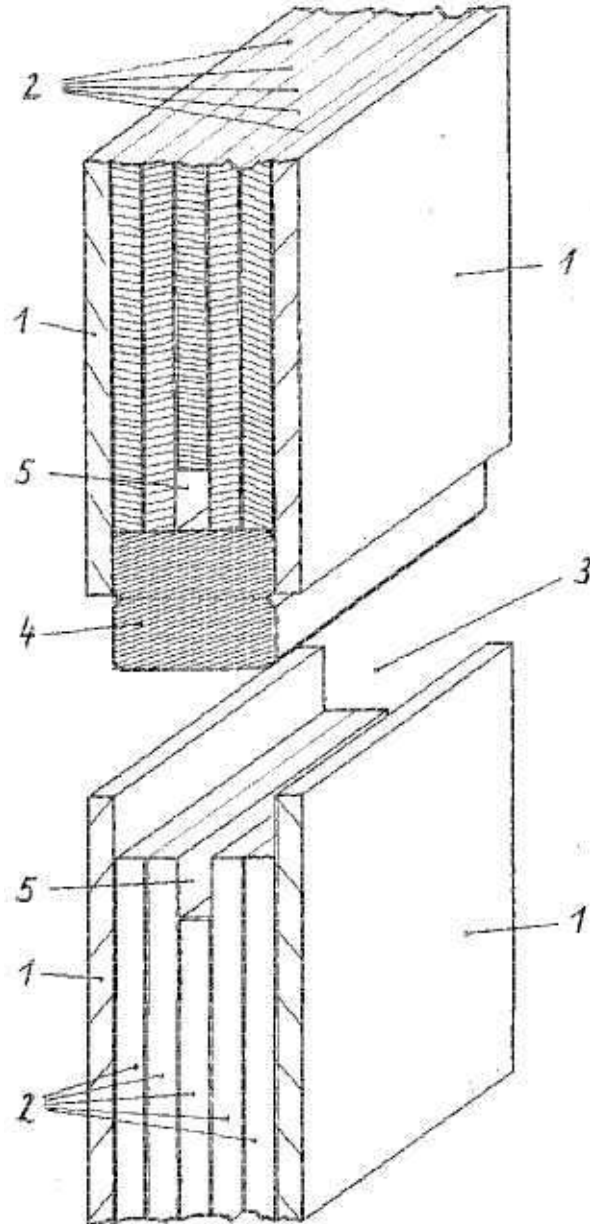


- (B1)
TETRAHEXAGONAL TRUSS
STRUCTURE

AB

- (A1)
A lightweight, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities** (12). Each solid-walled **cavity** (12) has a hexagonal base (24) so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** (12) has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base. The walls (13) of the **cavities** may be solid or they may be defined by a series of support struts (63, 64) for an even lighter weight structure. The upper and lower surfaces may be covered by skins (14, 16) making it suitable for boat hulls, vacuum chambers, and aircraft.

- PN - [DE10107934](#) A1 20020822
- PR - DE2001107934 20010220
- AP - DE2001107934 20010220
- DT - *; Rep
- CCI - [B27G11/00](#) ; [B32B13/10](#) ;
[B32B21/02](#) ; [B32B3/02](#) ;
[E04C2/12](#) ; [E04C2/24](#)
- PA - DROSTE KLAUS [DE]
- TI - Multi layer panel construction element, especially for partition walls, comprises **core** and cover layers forming groove for receiving post
- AB - **Core** panel layers (2) are bonded between two cover panel layers (1), the **core** layers being narrower than the cover layers so that a groove (3) is formed between the cover layers. A post (4) is slotted into or bonded inside the groove, part of the post filling the groove **cavity** and part of the post protruding beyond the cover layers. An independent claim is also included for a method for making the construction element, in which adhesive swellable upon curing is applied to the **core** layers in strip and/or spot form prior to the **core** and cover layers being bonded together.



45/51 © EPODOC / EPO

- PN - [DE2629676](#) A1 19780105
- PR - DE19762629676 19760701
- AP - DE19762629676 19760701
- DT - *; Rep
- CCI - [E04C2/34](#)
- PA - BECKER OTTO ALFRED DR
- TI - Building plate of stiff load carrying capacity - has parallel shells and tensioning and reinforcing components around compression resistant **core**
- AB - The building components esp. a stiff load carrying flat plate, has high strength. It is

resistant to bending and compression and it has high load carrying capacity. At least two plate or rod shaped elements are tensioned against each other to generate compressive or tensile stresses within these elements. The building element shell has supporting elements which loads this shell in tension in its plane. The plate has two shells and the **cavity** between them carries a support **core** capable of accommodating compressive loads normal to the plane of the shell.

46/51 © EPODOC / EPO

- PN - [DE2559342](#) A1 19770811
- PR - DE19752559342 19751231
- AP - DE19752559342 19751231
- DT - *; Rep
- CCI - [E04B1/803](#) ; [E04C2/34](#)
- CCA - [Y02B80/12](#) ; [E04B2001/8263](#) ; [E04B2001/8423](#) ; [E04B2001/8428](#) ; [E04B2001/8447](#) ; [Y02A30/242](#)
- PA - BECKER OTTO ALFRED DR
- TI - Prestressed supporting constructional component - has plate or bar type parts prestressed to generate tension or compression loads
- AB - Constructional component is partic. for use as a support resisting compression and bending loads in buildings, foundations, bridges, vehicles etc. It has two or more plate- or bar-type parts, pre-stressed against each other, in order to generate compression or tension loads in them. It can comprise a dish section and supporting members subjecting the section to tension load. There can be two parts assembled to form an intervening **cavity** accommodating a supporting **core**, which absorbs a compression load perpendicular to the dish section surfaces. Inside the **core** there are supporting parts at intervals, parallel to the dish surfaces and exerting a pressure on their edges so as to pre-stress them.

47/51 © EPODOC / EPO

- PN - [CN2844306Y](#) Y 20061206
- PR - CN20042150425U 20040826
- AP - CN20042150425U 20040826
- DT - I
- PA - QIU ZEYOU [CN]
- TI - Hollow **core** body as filler of concrete cast in site
- AB - The utility model relates to a hollow tyre body used for filling cast in site concrete, which comprises a hollow tyre body (1) and a supporting foot (2), wherein the supporting foot (2) is arranged on the outer wall at the bottom of the hollow tyre body (1); the hollow tyre body (1) with a hollow **cavity** (4) is formed by encasing and closing the outer wall (3). The utility model is characterized in that retaining members (5) are arranged on the hollow tyre body (1) or / and the supporting foot (2), the retaining members (5) comprise a self tight locking hole (6) and a self tight locking stripe or a self tight locking banding (7), and the retaining members (5) are anchored and fixed in the hollow tyre body (1) by anchor members (8) or connected with the anchor members (8) which are anchored and fixed in the hollow tyre body (1); thus, the hollow tyre body is

tightly locked and fixed on a moulding board or a reinforcing steel bar by the retaining members, therefore the hollow tyre body is positioned and fixed conveniently, and the efficiency of the construction is enhanced at the same time. The utility model can be used in hollow slabs, building covers, room covers, wall bodies, foundation slabs and bridges with the cast-in-situ concrete or the prestressed reinforced concrete, and is particularly suitable for the usage of the hollow building covers without beams.

48/51 © EPODOC / EPO

- PN - [CN2758351Y](#) Y 20060215
- PR - CN2004275581U 20041231
- AP - CN2004275581U 20041231
- DT - I
- PA - WANG BENMIAO [CN]
- TI - Hollow small rib floor cover
- AB - The utility model discloses a hollow small rib floor cover, comprising a column, a solid **core** band, a solid **core** thick girt strip with reinforced concrete, a panel with reinforced concrete and a compound thin wall container. The utility model is characterized in that: the lower end of the compound thin wall container is equipped with a shallow blanket once molded by casting with the hollow rib floor cover comprising a diamond wire web or other shapes of wire mesh, some reinforced material such as alkali -proof or alkali-resistant glass cloth or plastic network cloth and cement mortar; when the hollow rib floor cover with reinforced concrete in the onsite pouring, the compound thin wall container base board and the reinforced material cause the cement mortar penetrate to the basal of the compound thin wall container under the function of the vibrator; the basal board of the compound thin wall container organically bonds with the filled cement mortar to form a shallow blanket sealing the multi-ribbed **cavity**. The utility model can realize big span and big load; the structure is safe and reliable; the both-way stress is clear and definite; the construction is easy; it can reduce the cost; it has the effect of once cast to flat the blocking rib floor cover **cavity**.

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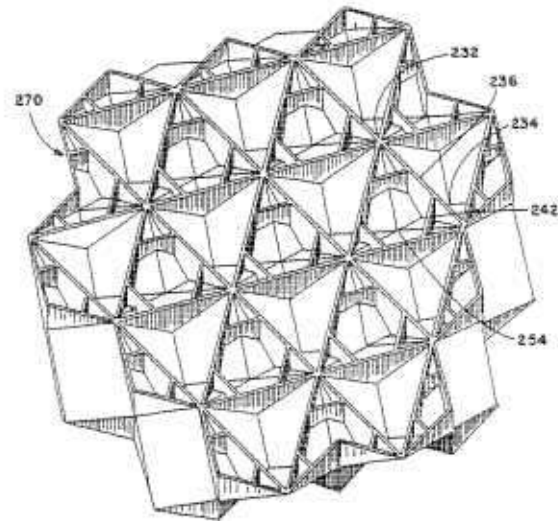
- PN - [CN2274223Y](#) Y 19980211
- PR - CN1997207068U 19970124
- AP - CN1997207068U 19970124
- DT - I
- PA - HOU QUANYUAN [CN]
- TI - Hollow wall plate
- AB - The utility model discloses a hollow wall plate, which comprises a concrete wall panel. The concrete wall panel is provided with a hollow **core** mode which can form a **cavity**. The utility model does not need to build by bricks and can not destroy farmlands; the utility model has the advantages of short operation period and low fabricating cost, and can be widely used on the industry and civil architecture, such as houses, hotels, office buildings, etc.

50/51 © EPODOC / EPO

- PN - [CA2147680](#) A1 19961025
- PR - CA19952147680 19950424
- AP - CA19952147680 19950424
- DT - *
- CCI - [E04C3/42](#) ; [E04C3/12](#)
- PA - UNIQUE TIMBER CORP [CA]
- TI - COMPOSITE FRAME CONSTRUCTION BUILDING MEMBERS
- AB - A composite member for framing has a central **core** of longitudinally spaced apart longitudinally aligned first members along a central longitudinal axis, a parallel pair of opposed second longitudinal members, parallel to the central longitudinal axis and lying in a first plane, the second longitudinal members rigidly secured, as by lamination, in adjacent abutted relation on opposed sides of the first members, the first members and the second members defining therebetween a longitudinally spaced-apart array of **cavities** along the central longitudinal axis, the **cavities** extending through the composite member in a direction perpendicular to the first plane, the **cavities** having **cavity** openings parallel to the first plane, the first and second members being parallelopeds.

51/51 © EPODOC / EPO

- PN - [CA2023572](#) A1 19910302
- PR - US19890402451 19890901
- AP - CA19902023572 19900817
- DT - I
- CCI - [B29C45/26](#) ; [B29C33/42](#) ; [B29D99/0089](#) ; [E04B1/19](#) ; [E04C2/326](#) ; [E04C2/34](#) ; [E04C2/3405](#) ; [E04C2/365](#)
- CCA - [E04B2001/1927](#) ; [E04B2001/1978](#) ; [E04B2001/1981](#) ; [E04B2001/1987](#) ; [E04B2001/199](#) ; [E04B2001/1993](#) ; [E04C2002/3494](#) ; [Y10S52/10](#) ; [Y10T428/24678](#)
- PA - TETRAHEX INC [US]
- TI - TETRAHEXAGONAL TRUSS STRUCTURE AND METHOD
- AB - TETRAHEXAGONAL TRUSS STRUCTURE AND METHOD A lightweight, high strength moldable structure is comprised of a **core** having a plurality of interconnected **cavities** (12). Each



~~solid~~ **cavity** (12) has a hexagonal base (24) so that the **core** of the structure has upper and lower surfaces. Each solid-walled **cavity** (12) has a unique tetrahexagonal shape in which a regular tetrahedron is located on top of and integrated with a hexagonal base (24). The walls of the **cavities** may be solid or they may be defined by a series of support struts (63, 64) for an even lighter weight structure. The upper and lower surfaces may be covered by skins (14, 16), making it suitable for boat hulls, vacuum chambers, and aircraft. The hexagonal bases of the solid walled **cavities** (12) may be replaced by perpendicular support walls (236, 242, 252) extending between the adjacent tetrahedral apices (232, 234) and/or hexagonal base vertices (254).

[SS 13] ..v

[EPODOC: SS 13]